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TECHNOLOGY REVIEW

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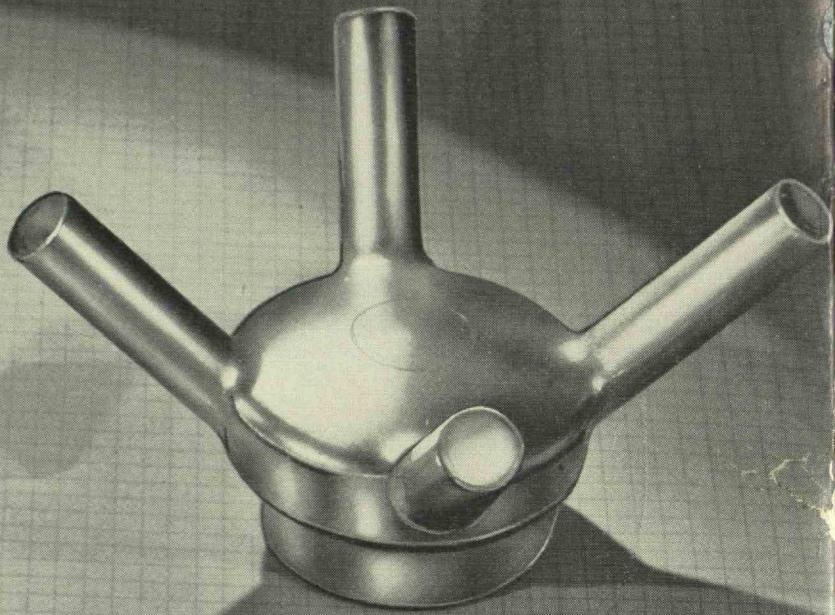
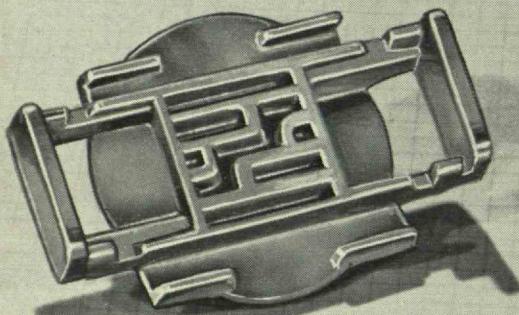
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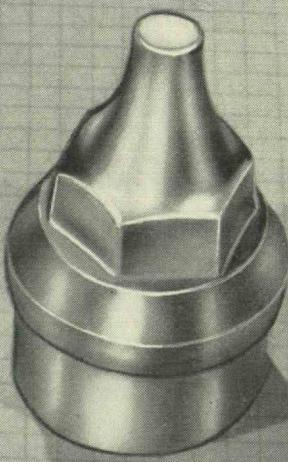
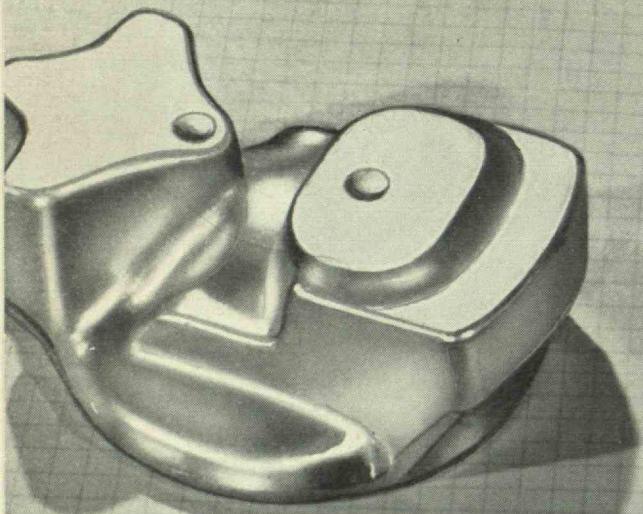
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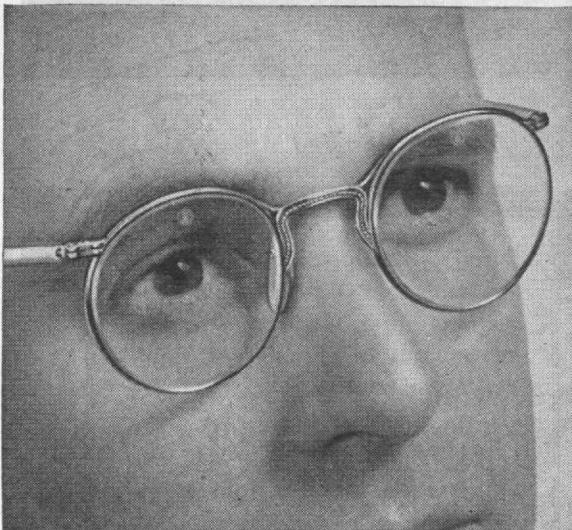
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212 — 10 years service

47 — 15 years service

59 — 25 years service

29 — 35 years service

Approximately 10% of all Norton employees have been with the company 25 years or more.

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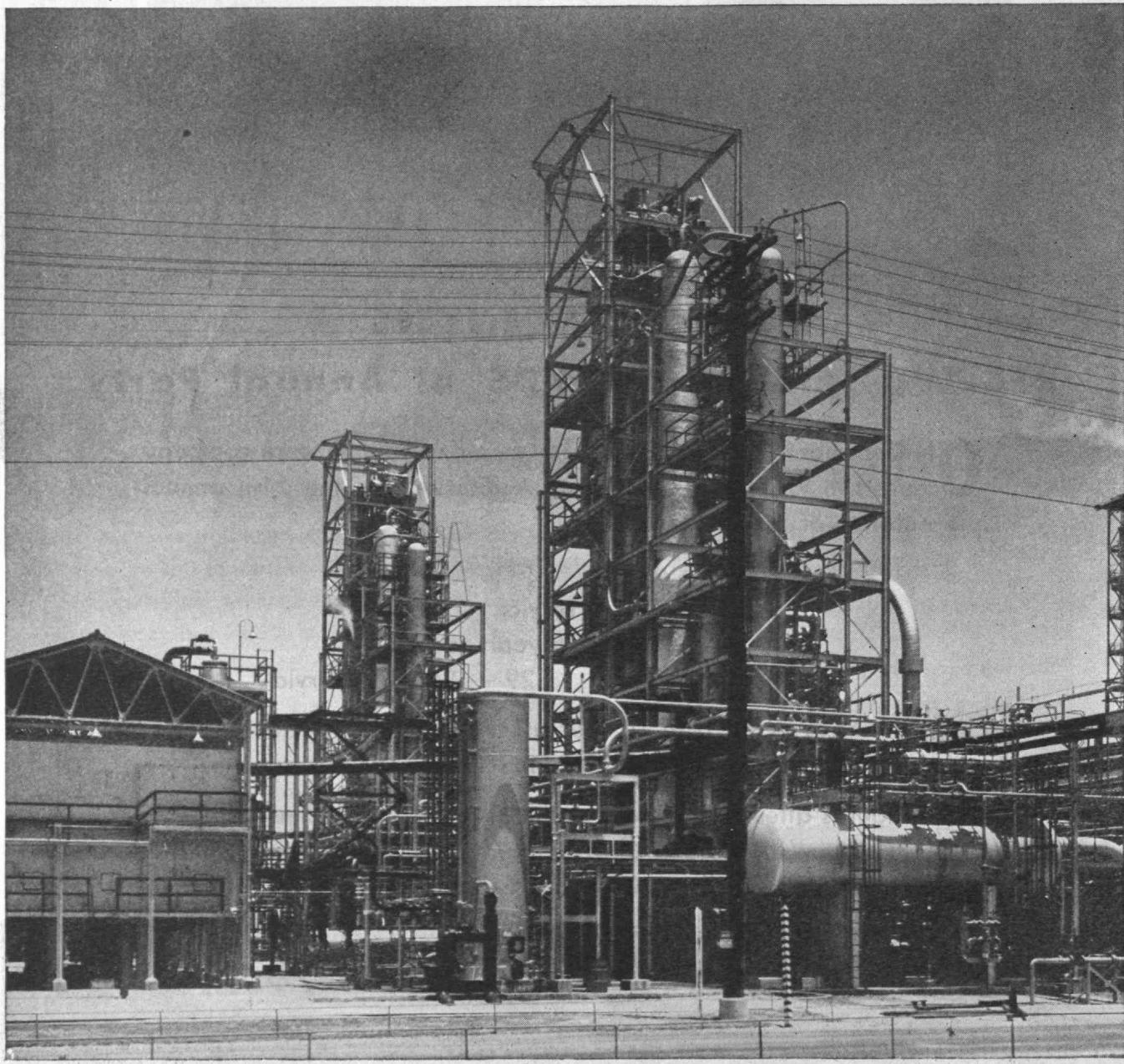
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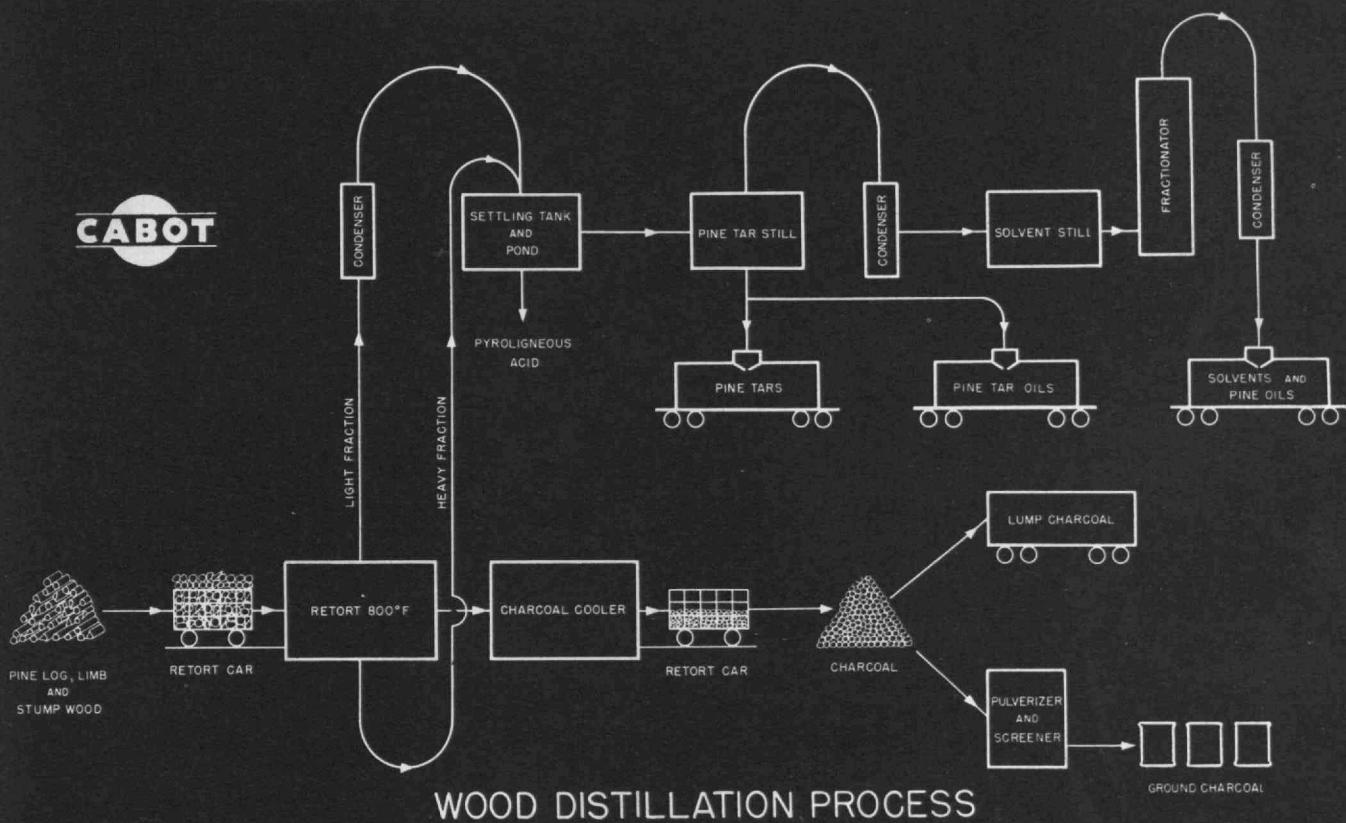
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"*To make the benefits of x-ray available to more and more people...*" That has been the goal of General Electric x-ray specialists since 1913, when the company's energies were first directed into x-ray research by the work of Dr. William D. Coolidge.

Now, with the development of the Cancer Mobile by the combined efforts of the Kentucky division of the American Cancer Society and General Electric, x-ray facilities will be carried into the most remote areas, and to the humblest homes.

The farmer's wife with the lump in her breast, the village store clerk whose voice has dwindled to a hoarse whisper, no longer need live in fear for months wondering whether or not they have cancer. Rural doctors who lack x-ray facilities will use the bus for their private patients. But in addition, those unable to pay will receive free examination.

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COMMUNITY CENTER

The McCarthy Center, now under construction in Houston, Texas, will comprise the 18-story Shamrock Hotel; a garage to house 1,275 cars; a shopping center of several buildings; a theatre seating 1,750,

complete with concert stage; a 50-meter swimming pool; and a 15-acre parking lot.

Stone & Webster Engineering Corporation are the project managers for the construction of this comprehensive community center.



WYATT C. HEDRICK, ARCHITECT



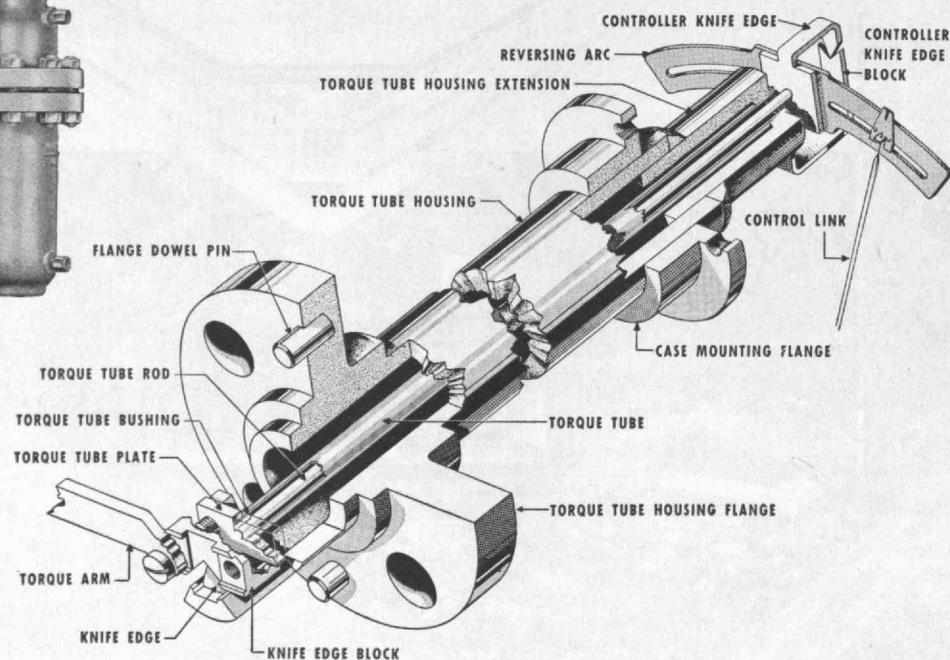
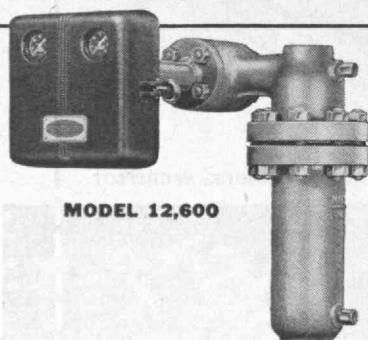
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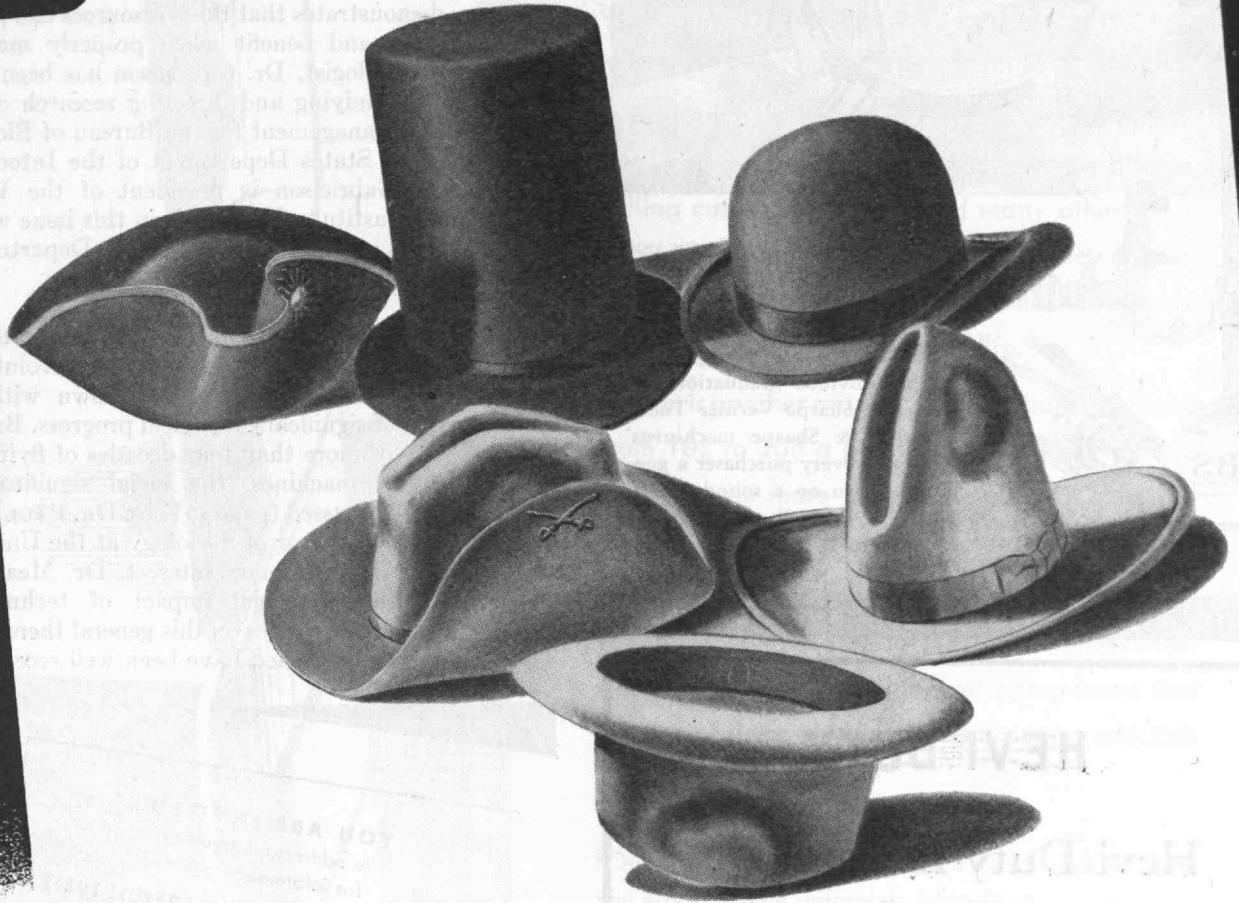


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Industries Served by TAFT-PEIRCE:

6. The Hat Industry



If there's a HAT TRICK on your mind
... better take it to TAFT-PEIRCE!



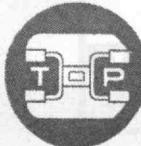
To Woonsocket has come more than one harried hatter with a manufacturing problem which looked, at first glance, as impossible as the next high-style hat you'll meet on the street.

Yet these "impossibilities," when tried on for size in the Taft-Peirce Contract Division, were converted with rabbit-speed into profitable practicalities. For instance, one particular engineering "topper" took the form of a machine like a treadless tank, which gobbles up loose fur at one end, applies twenty feet of unseen voodoo, and then produces an endless line of roughed-out hats all ready for processing.

Fur doesn't fly. Felt quality doesn't vary. And you can paste that in *your* hat (which, more than likely, started life on this machine).

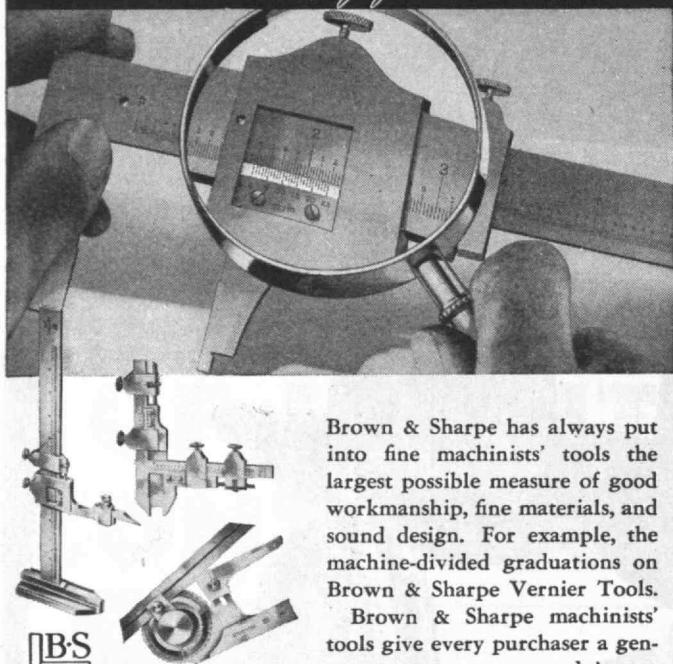
If you have an "impossible" which needs doing — or any other manufacturing problem — whether for hat, frozen food, vacuum cleaner, or what not—the Taft-Peirce Contract Division will tool and build the special production machines you need, in strictest confidence if you say so. And if the end-product is a mechanism or machine, Taft-Peirce will produce that, also, in medium lots or in quantity. For full details and terms, write to The Taft-Peirce Manufacturing Co., Woonsocket, R. I.

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Write for Bulletin S-4611

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THE TABULAR VIEW

Perpetual Replacement. — Not long after 1900 the need for greater efficiency, for a more intense cultivation, and especially for conservation measures became clear. The basic concepts of conservation of this nation's land, water, and wild-life resources are discussed (page 149) by DR. IRA N. GABRIELSON who, in a convincing dissertation, demonstrates that these resources can provide perpetual gain and benefit when properly managed. Trained as a biologist, Dr. Gabrielson has been active since 1915 in studying and directing research on wild life and game management for the Bureau of Biological Survey, United States Department of the Interior. At present, Dr. Gabrielson is president of the Wildlife Management Institute. His article in this issue was one of two lectures given to students in the Department of Civil Engineering last spring.

Aerial Dimension. — The full social implications of technological advances are discerned in an evolutionary process, rather than springing full-grown with each manifestation of significant technical progress. Based on a background of more than four decades of flying with heavier-than-air machines, the social significance of aerial travel is discussed (page 154) by DR. PAUL MEADOWS, Associate Professor of Sociology at the University of Nebraska. As his primary interest, Dr. Meadows is concerned with the social impact of technological changes. His earlier articles on this general theme which The Review has published have been well received.

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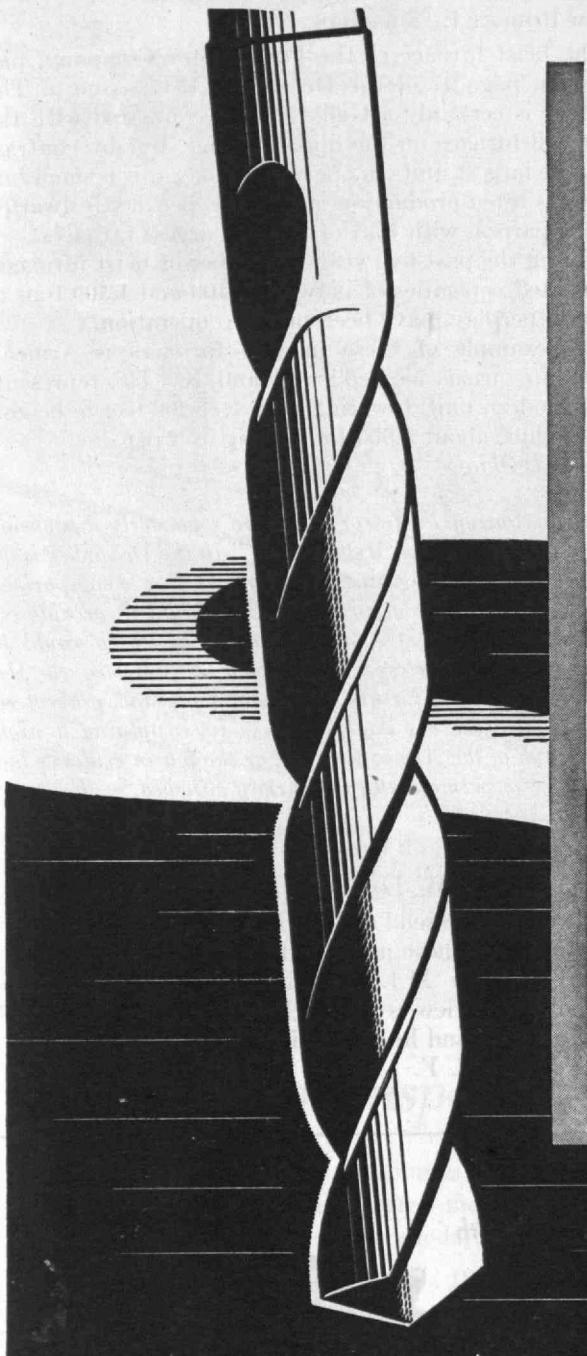


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Why do makers—and users—of metal-working tools go strong for molybdenum high speed steels?

Performance is one answer. In actual operation, in the form of twist drills, hacksaw blades, milling cutters, lathe bits and many other tools, molybdenum steels have proved that they outperform 18-4-1. They work longer between grinds, and they have longer over-all life.*

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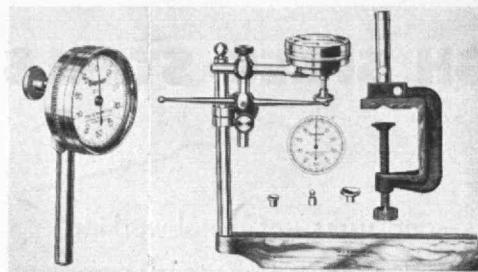
Many of the country's largest users of high speed steels have standardized on molybdenum steels. They have done it because they know that the use of these modern steels lowers production costs.

*Our booklet on molybdenum high speed steels will give you proof of these statements. Write for it.

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MAIL RETURNS

David and Goliath

FROM ROBERT E. TOUZALIN, '39:

The blast furnace of the Ford Motor Company, pictured on page 97 of the December, 1947, issue of *The Review*, is certainly a Goliath when compared with the Cornwall furnace on the opposite page, but by contrast with the largest units in operation today it is a small furnace. Its rated production of 625 tons per day is dwarfed by comparison with that of today's largest furnaces.

During the past five years a number of blast furnaces, with rated capacities of between 1,400 and 1,500 tons of pig iron per day, have been put into operation.

One example of these modern furnaces is Armco's Bellefonte furnace located in Ashland, Ky. This representative modern unit, towering well over 200 feet in height, can produce about 1,300 tons of pig iron per day. *Cleveland, Ohio*

*In illustrating Professor Hayward's masterly discussion "How Long Will Our Metals Last?" in the December issue of *The Review*, the objective was merely to show a comparison of colonial and current practice, rather than to provide examples of the largest and smallest units which could be discovered. Nevertheless, *The Review* is indebted to Mr. Touzalin, not only for his acute comments and prompt reply, but also for his thoughtfulness in supplying a night photograph of the Armco furnace, as though in evidence that the matter is permanently and firmly clinched. — Ed.*

Welcome Stranger

FROM FREDERIC W. LORD, '93:

Will you please send a subscription form to an intimate friend of mine whose name and address are attached?

He is not an M.I.T. graduate but says that *The Technology Review* is one of the finest papers published in the country and he would like to subscribe. *New York 20, N. Y.*

Speed with
Economy

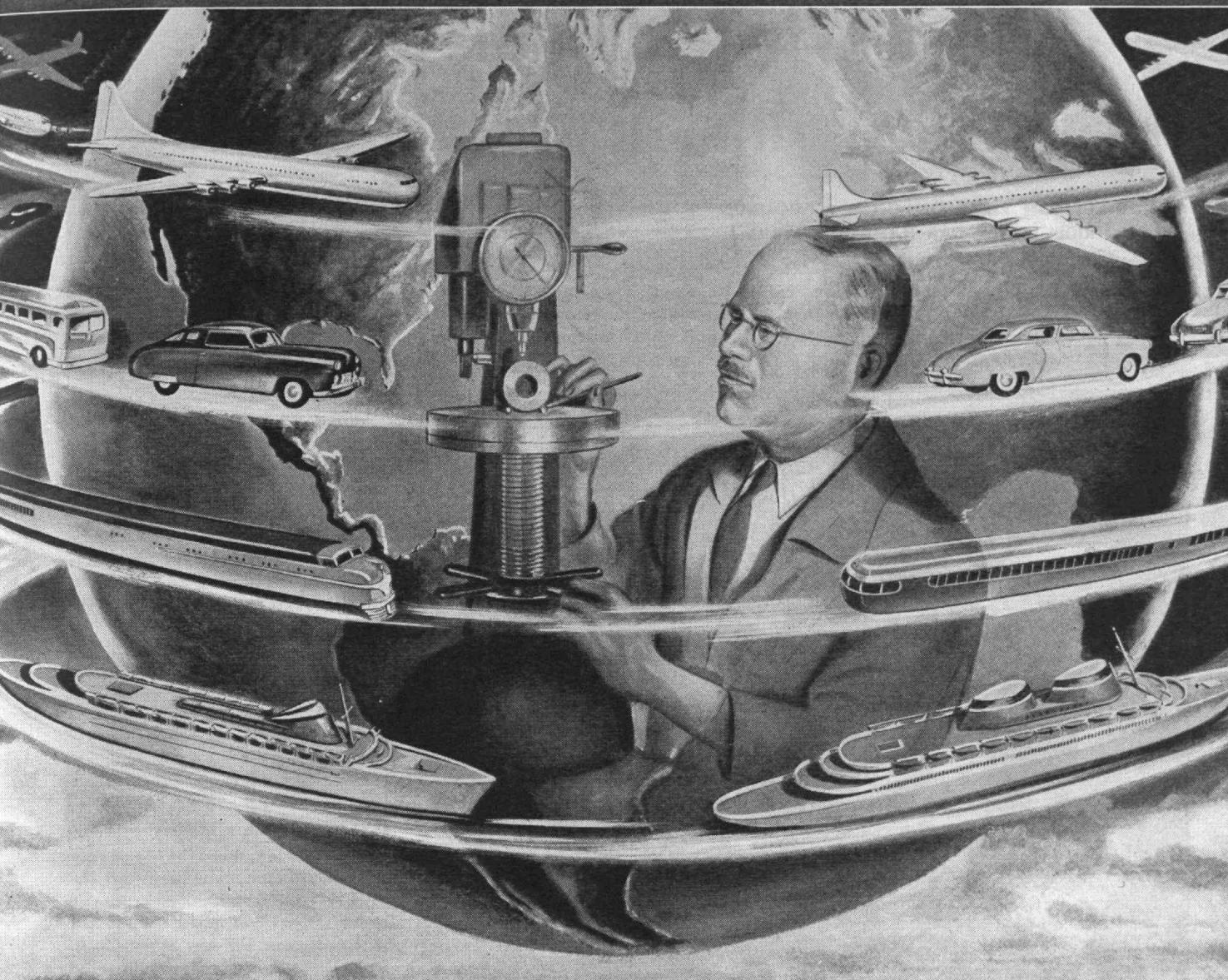


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W. J. BARNEY CORPORATION
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Alfred T. Glassett, '20, Vice President

“—Many shall run to and fro, and knowledge will be increased”—DANIEL XII, 4.



Why transportation gets better all the time

OVER SIX HUNDRED MILES AN HOUR in the air, four hundred on land, one hundred on water—these are the speeds that are telescoping time and space today.

The world shrinks and shrinks . . . Distances that were once days, weeks, months away are now a matter of hours. What things behind the scenes have brought these whirlwind developments in transportation?

There's chromium, for one. Basis of stainless steel, it toughens planes, cars, trains . . . insures added safety . . . yet makes them lighter throughout.

There are special carbon brushes necessary to the operation of some thirty motors and generators used in the control apparatus of modern transport planes. These brushes must be built to stand up under the pressures of high altitude flying.

Colorful plastics, too, lend their lightness, give their strength, safety and serviceability.

And gasoline now gives more power—has more get-up-and-go—takes you farther at less cost . . . thanks to new vitalizing chemicals.

Producing these better materials and many others—for the use of science and industry and the benefit of mankind—is the work of the people of UNION CARBIDE.

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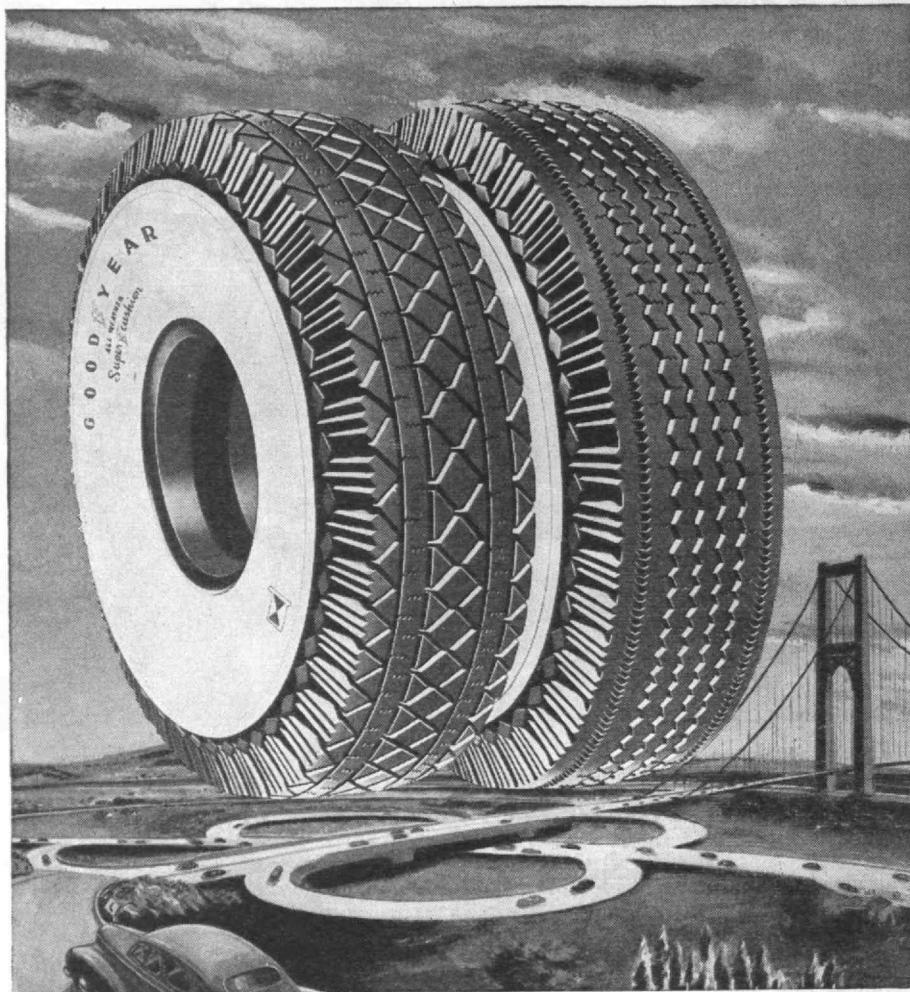
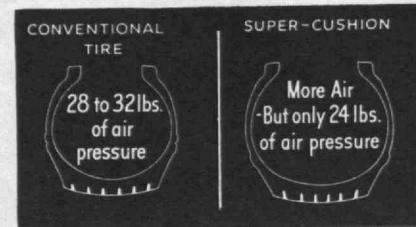
Why car makers adopted this new kind of tire

SUPER-CUSHION RUNS ON ONLY 24 POUNDS OF AIR; GIVES INCREDIBLY SOFTER RIDE, BETTER CAR HANDLING, MORE MILEAGE AND CAR ECONOMY!



Car makers astonished—After testing the Super-Cushion, car makers said: "This tire makes a big improvement in the performance of modern motor cars."

"It's the biggest tire advance in 15 years!" They quickly adopted it for their new cars. Here's why you'll want this remarkable new tire for your car . . .



See your Goodyear dealer now. If he doesn't have your size at the moment, he'll have it soon.

For the smoothest, safest ride you've

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MORE PEOPLE RIDE ON GOODYEAR TIRES THAN ON ANY OTHER KIND

The new *Super-cushion*

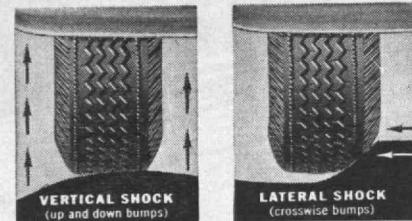
by **GOOD**  **YEAR**



Super-Cushion T.M.—The Goodyear Tire & Rubber Company

1. Softer ride—safer, easier car handling! The Super-Cushion is a bigger, softer tire. It runs on only 24 pounds of air instead of 28 to 32. So you get a noticeably smoother, softer ride.

And you get a remarkable new ease and security in car handling. Your car *hugs* the road, seems to float through traffic, to *flow* around curves.

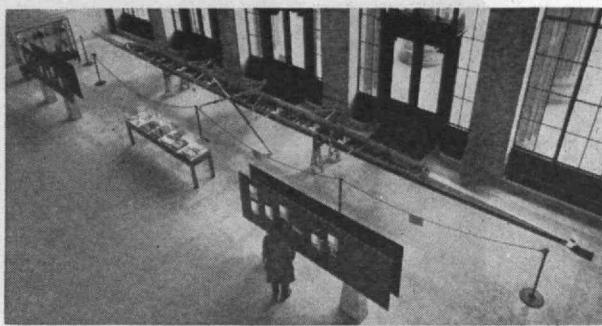


2. Actually lengthens the life of your car! Till Goodyear produced the Super-Cushion, lateral or crosswise shock (right) had never been licked in motor cars. Pillow-y Super-Cushions *soak up* crosswise jolts, *soak up* vibration.

Result: *less driving fatigue, less wear and tear on your car, fewer rattles, fewer repair bills!*

3. More mileage—extra blowout resistance! Super-Cushions run cooler (heat is a tire's worst enemy). Softer, they "roll with the punch," are harder to cut, bruise or blow out. So Super-Cushions consistently average more mileage than the best standard tires.

Two other big advantages: 1. Super-Cushions make a small car ride like a big one. 2. They dress up the appearance of your car!



THE TECHNOLOGY REVIEW

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Curtains of Light



Northern lights — beautiful and fascinating — have long interested inhabitants of northern climates. The two examples of aurora borealis were photographed last August 14, where Canada's Moose River joins James Bay. Looking north over bleak and desolate marshes from the Moose Factory Post of the Hudson's Bay Company, these streamers of pale green, rose, and yellow were captured during 10-second exposures by John J. Rowlands, Director of News Service at M.I.T.

THE TECHNOLOGY REVIEW

Vol. 50, No. 3



January, 1948

The Trend of Affairs

Fore and Aft

AT the beginning of the first month marked on our calendars it is natural for thoughts to be turned to the fore. New hope and vigor for better things to come are traditionally reflected in anticipation of the future. As the past proclaims the future, it is befitting also to glance aft, to linger over the accomplishments of the past and to meditate particularly upon those events which have wrought significant changes in our lives. It becomes inspiring, also, to record events transpiring in years ending with the number eight, or those years for which the new year, 1948, will mark anniversaries in quarter-century multiples.

Just 175 years ago, in 1773, Sir Henry Cavendish in England took the first step in establishing electrical science on a quantitative basis, in experiments which showed the force of attraction between two isolated electric charges, concentrated at points, to be inversely proportional to the distance between them. Fifty-five years later, in 1828, the American, Joseph Henry, built the first electromagnet, being forced in the process to insulate his own wire. Another step advancing electrical communication was made in 1858 when the first message was transmitted across the Atlantic Ocean by telegraph cable. In New Haven, Conn., the first telephone switchboard was opened for commercial service on January 28, 1878. A decade later the German physicist, Heinrich Hertz, experimentally produced and detected electromagnetic "waves of electric force" thereby confirming the mathematical predictions of Maxwell some two decades earlier. In 1898 the Italian, Guglielmo Marconi, working in England, succeeded in maintaining radio communication over a distance of 30 miles thereby giving utilitarian value to Hertz's laboratory investigations. Coming to more recent times, just 25 years ago, on January 4, the first radio chain broadcast between New York and Boston was put into operation, and on January 14, 1923, one-way transoceanic telephony from New York to

London was demonstrated. Both were accomplishments of engineers of the Bell Telephone System.

The year 1948 throws the spotlight on several anniversaries in printing and photographic developments. In 1798 Count Rumford contributed a paper to the *Philosophical Transactions* on "An Inquiry Concerning the Chemical Properties that Have Been Attributed to Light" in which was summarized the knowledge of photochemistry of 250 years ago. The carbon printing process was invented by Mungo Ponton in France in 1838, and in England, three-quarters of a century ago, William Willis invented the photographic platinotype process. It is reported that the prototype of motion pictures dates to experiments of Eadweard J. Muybridge in 1878 in which the motions of a racing horse were photographed. The greatest single factor in the public's participation in photography was the invention of the dry roll film and the first camera to operate satisfactorily when held in the hands. Both of these developments, made in 1888, owed their existence to George Eastman, a revered name to M.I.T. Alumni since it became known that the anonymous "Mr. Smith," whose financial benefactions helped to build a larger and more influential Technology, was synonymous with the great inventor.

A type casting and setting machine was invented by Church in the United States in 1828, the same year in which Isaac Adams gave the world the power printing press. In another half century, printing and photography were destined to be combined in the half-tone engraving process. Although dispute surrounds early work in this field, credit is usually given to F. E. Ives for having conceived and reduced to practice the variable dot structure of producing images in 1878.

In the field of transportation, the coming year marks the 125th anniversary of the freight car invented by Gridley Bryant in 1823. On March 28, 1858, E. A. Gardner received a patent for his cable car but 15 years were to pass before the first cable street car in the world was put into service in San Francisco on August 1, 1873. It

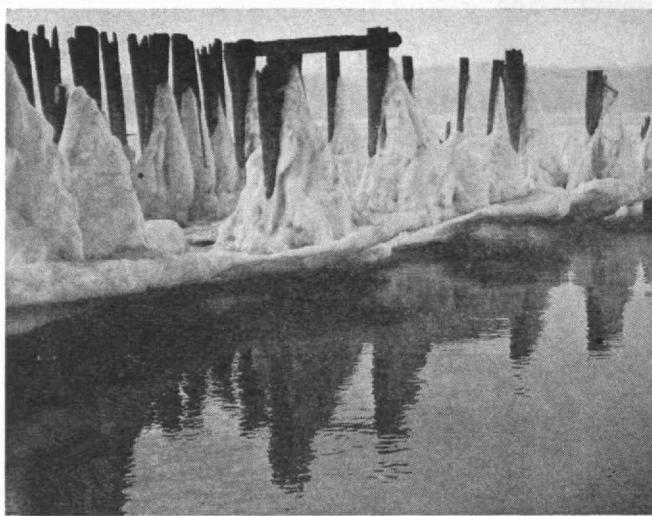


Photo by Harold J. Loveless from Black Star

was the invention of Andrew S. Hallide. In the same year, E. H. Janney contributed to speeding railroad operations by the automatic car coupler patented five years earlier. Eighty years ago, in 1868, W. W. Austin of Winthrop, Mass., devised the first motorcycle — a steam-driven affair with a boiler amidships. An early horseless carriage was made by Serpollet in France in 1888 and 10 years later the first automobile truck was designed and built by Louis S. Clarke in Pittsburgh. Ethyl gasoline was first marketed in Dayton, Ohio, in 1923. This was the same year in which closed automobiles were sold for less than \$1,000 each, but today the trend of a quarter century ago is reversed. A mere 10 years ago, automobiles with improved windshield vision, catwalk grilles, independently sprung wheels, and airfoam seat cushions were the center of attraction in automotive engineering; today, automobiles are definitely "in short supply."

In the field of pure science, the year 1948 marks the 150th anniversary of Cavendish's measurement of the earth's mean density, for it was in 1798 that the somewhat eccentric aristocrat made the first proof and measurement of the force of gravitational attraction between two terrestrial masses small enough to be contained in an ordinary room. A century and a quarter back, in 1823, Michael Faraday liquefied chlorine, carbonic acid, and other gases. Three-quarters of a century ago Johannes D. van der Waals established his equation for the relation between pressure and volume of carbon dioxide at different temperatures, thus summarizing all questions of the liquefaction of gases. The Lick Observatory at the University of California installed and exhibited the first seismograph in 1888.

In agriculture and food technology it is possible to record that the first patent on oleomargarine was obtained 75 years ago by Hippolyte Mège of France on December 30, 1873, the same year in which an American woman, Amanda Jones, became responsible for a process of preserving fruit. Only 20 years ago, in 1928, R. Kemp is credited with being the father of whole-process tomato juice. Possibly of great public-health value, but hardly to be classed as a contribution to the society of gourmets, is the first practical large-scale use of chlorine for water purification in Jersey City in 1908. Now, more than half the country's population is supplied with chlorinated water.

In educational circles, the year 1868 is significant for at least two important events. On April 29 William Barton Rogers requested and was quickly granted authority by the Commonwealth of Massachusetts to award degrees to students upon satisfactory completion of a course of study at the Massachusetts Institute of Technology. Fourteen students constituted the Institute's first graduating class. Also in 1868 the first English-speaking kindergarten was opened in Boston by Miss Elizabeth Peabody.

Certainly one of the most eventful dates of a century ago is that of February 9 when gold nuggets were found near the mill of John A. Sutter at Coloma, Calif. This discovery touched off the trek of forty-niners and greatly accelerated settlement of the West. Also in this year the Chicago and Northwestern was to be the first railroad to run its trains west, out of Chicago. Looking toward national defense a century ago, as indeed we may well do today, it is fitting to recall that the *U.S.S. Saranac*, a 1,238-ton vessel built in 1848, was the first Navy warship propelled by steam. The sum of \$10,000 was appropriated on August 14, 1848, for establishing national life-saving stations, and eight buildings were erected and appliances supplied for this modest amount. A century ago Boston established the first shirt factory in this country, and in Philadelphia the American Association for the Advancement of Science was organized on September 20. Perhaps the appearance of the first baby carriages in New York, but certainly the display of a new style of women's apparel (known as bloomers) in 1848, foreshadowed the emancipation movement of women in this country. With an eye to political events to take place next year, it may be recalled that the first national committee of party political organizations will be entitled to celebrate its centennial on May 28. The first building in the United States constructed wholly of cast iron was a five-story factory built by James Bogardus in New York City.

Time became an important factor with the rise of industrialism and in 1858 Ira G. Blake improved time-keeping apparatus with his chronometer. During the same year, the Walls patent arctic gaiter, a waterproof overshoe made of cloth and rubber, became known. The first dining car was built by the Chicago and Alton Railroad Company and was placed in service in 1868. The first copper refinery to operate by the use of gaseous fuel was constructed in 1878 by William Durfee. The burgeoning electrical industry was assuming importance in the daily lives of persons in this country as indicated by the invention of a practical system for trolley cars in 1888 by Frank Sprague. In the same year, Oliver Shallenberger found a way to put the electric power companies on a paying basis with his electricity meter which recorded the total amount of electrical power consumed.

Half a century ago, when this country was at war with Spain, the first electric flashlight is reputed to have been marketed by the American Electric and Novelty Company of New York. Paper manufacture by the sulphite process was first introduced on a commercial scale in the same year. The first mineral segregation by flotation, the process that causes particles of the same species to cling together, was demonstrated by P. T. Elmore in the same year. To complete the record it may be noted, for better or for worse, that 25 years ago a tint of blushing was first injected into the Great White Way when there was installed on the marquee of New York's Cosmopolitan Theater the first neon sign.

Electronics Research

DURING November research workers from all parts of the country met in Chicago for the third annual National Electronics Conference at which were discussed matters of importance in the electronics field. Originally limited to applications in communication in which electron tubes were first used, the field of electronics has broadened out, especially during the past decade, to include electronic instrumentation, industrial applications in measurement and control, electronic heating, mathematical computing devices, and military applications. Electronics also makes many important contributions to the comparatively new field of nucleonics as well, in which the interior structure of the atom is studied.

Papers were presented on various aspects of communications by Lawrence B. Arguimbau, Raymond A. Glaser, John Granlund, 10-44, Stanford Goldman, and Roberto M. Fano, '41, all of the M.I.T. staff.

As might be expected in a gathering of technically trained personnel, the major emphasis was on the scientific and engineering aspects of recent progress in the electronics field. Nevertheless there were a number of papers dealing with administrative and general topics. Indeed, in the opening address by Dr. George D. Stoddard, President of the University of Illinois, concern was expressed at the military applications which are being made of scientific achievements, and a call was sounded not for abandoning science in a moratorium as has several times been suggested, but in using science more effectively for man's good. In somewhat similar vein, Dr. L. V. Berkner of the Joint Research and Development Board discussed the need for better co-ordination in handling research problems of large magnitude and scope. The wartime development of radar cut across commercial lines, permitting the pooling of resources to carry out a project of national scope. The peacetime problems of aerial navigation and of freight dispatching could likewise be well handled by a similar co-operation of technical personnel, and indeed it seems unlikely that they can be nearly as well solved without large-scale co-operation.

Many of the technical papers indicated a healthy renewal of interests which were put aside when Pearl Harbor was attacked. In particular, there was added emphasis on improvements in the electrical reproduction of speech and music and on the reduction of needle scratch in phonograph reproductions.

Although it is not commonly recognized by persons remote from New York and Chicago, television is now an accomplished fact. Having been given the green light by the Federal Communications Commission, television is now developing rapidly. Windows of business establishments in the areas served carry invitations to the public to enter and view the program in progress. Several manufacturers have assembly lines in full production of television receivers, and a backlog of orders that more than covers their output for some time to come is reported from most of these manufacturers. Many other large cities beside New York and Chicago are expected to have stations in operation soon. It was, therefore, somewhat surprising to find only four of a total of 60 papers devoted to this new and growing field.

The economic limitation remains a large factor in determining the type of program now made available. Ready-made programs, such as prize fights, games, ex-

hibitions and demonstrations are utilized as program material to a large extent, along with audience-participation programs involving sidewalk passers-by. In many cases the high price of television equipment (to which is usually added an installation charge of about \$50) is a deterrent to sale of sets in the home, particularly in the absence of a continuous program of such quality as would be competitive with motion pictures.

Considerable progress was shown in the field of wire recording. Units including a complete radio receiver and recorder so that broadcast material could be recorded and monitored were demonstrated. The recorders were ingeniously constructed with a number of safety features to take care of accidental wire breakage. Playing time for a single reel of wire was usually 30 minutes, although one-hour reels were also available. Playback or rewind time was about 10 per cent of the playing time. Devices providing a continuous indication of running time, accurate to within a few seconds, were provided on many models. At normal operating speeds reproduction of music was as good as would be expected from any high-quality radio receiver.

Another interesting application of the magnetic recording technique was a voice-recording device employing flexible paper discs coated with iron powder, and providing means for recording a three-minute dictation. The paper disc can be folded and sent through ordinary mail channels for transcription at a distant point by means of a similar device, since one unit serves to record and transcribe. Provision is made to erase any part of the dictation at will.

Hearing aids as a means for employing electronics to aid one of the senses have been known for more than a decade, but a paper describing ultrasonic guidance devices for the blind opened the way for electronics to aid another sense. One guidance device which was demonstrated is essentially a form of echo-ranging equipment using a supersonic beam modulated with a signal in the range of audibility. The beam is projected from a portable guidance device which also receives and detects echoes reflected from solid objects. The blind operator receives information about his surroundings from the pitch or flutter of the detected sound. The equipment demonstrated worked well although it is still in the developmental stage.

The absorption of electromagnetic waves by gases oc-

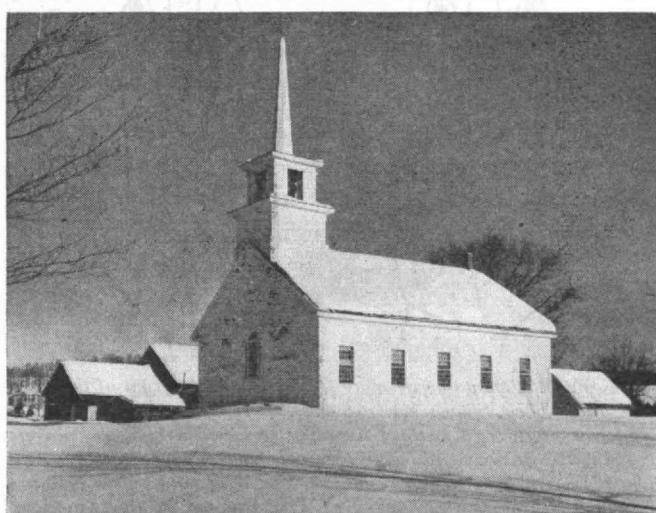


Photo by Vachon from Standard Oil Co. (N. J.)

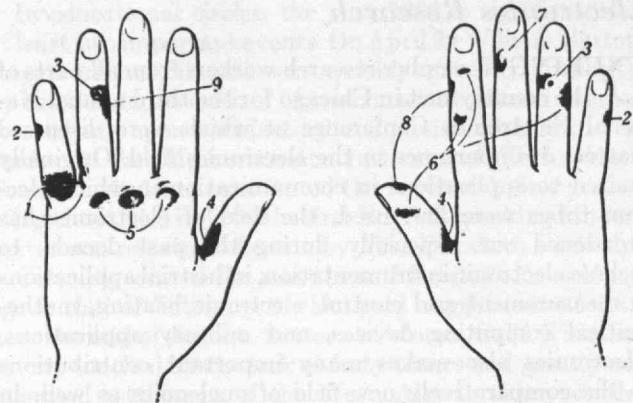
cers at frequencies which correspond to the rotational frequencies of the molecule. Since the absorption line frequencies can be measured to one part in a million, this method provides a precise means for determining molecular moments of inertia. In this way a new use for electronics in studying the atom and nucleus was reported in a survey paper on microwave spectroscopy.

One of the most interesting papers to be delivered was by Karl Lark-Horivitz of Purdue University on semiconductors. Since the earliest days of radio communication, partially conducting crystal detectors have been used, but the reason for their strange properties has not been well understood. The application of the quantum principle to the study of substances which are neither good conductors nor good insulators has made it possible to predict the performance of previously untried substances and to explain the large influence of impurities. Because of the peculiar properties of semiconductors, the study gives promise of yielding important new electric circuit components.

Marked Men

THE laborer's horny hand is not the only occupational stigma; many trades and even certain arts and professions bear characteristic physical marks. Horny handedness alone takes a number of unique forms. The stonecutter has a ring of callus on the back of the little finger where the chisel is steadied while it is grasped by the remaining fingers. Landscape gardeners have thick calluses on the knuckles of the left middle and ring fingers, as a result of the customary attitude of these artisans — leaning on the fisted left hand while working with the right. Musicians often bear characteristic hand calluses, located according to the instrument played. Common hand stigmata are shown in the accompanying illustrations.

Occupational marks on the hands are not confined to calluses. Right-handed bricklayers exhibit left finger tips worn smooth and shiny as a result of lifting and placing bricks with his hand. Dentists bear hand calluses similar to those of writers and artists, because the dentist's drill is customarily grasped in the same manner as a pencil. But dentists also frequently have unique hand stigmata, scars from repeated burns on the thumb and



Ensemble of the most common calluses, cicatrices, and stigmata on the hands of: 1, the stonecutter; 2, the burler; 3, the polisher of spectacle frames; 4, the janitor or sweeper; 5, landscape gardener; 6, seamstress; 7, writer, dentist or designer; 8, the barber; and 9, drum player.

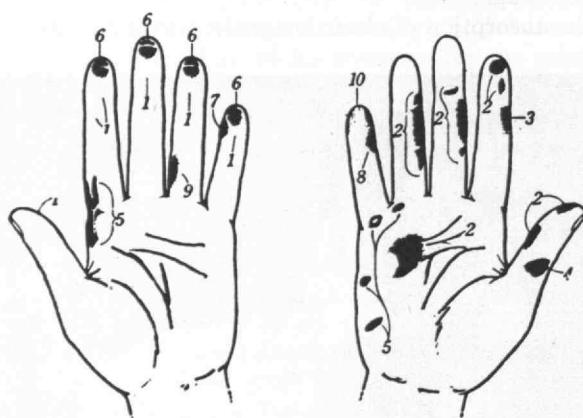
forefinger of the working hand produced when softening gutta-percha temporary fillings by holding them in the fingers near a flame. A frequently seen professional hand stigma is the nitric acid stain upon the fingers as worn proudly by all M.I.T. freshmen, indifferently by students of Course V (Chemistry) in later undergraduate and in graduate years, and with annoyance by practicing chemists as long as they work in the laboratory. Finally, hand stigmata may result from "foreign body reaction" to extraneous material that penetrates the skin; typical of this class of marks are milkers' nodules, deep red, warty excrescences on the hands resulting from entrance of cow's hair into the skin.

We have seen that occupational marks on the hands are not limited to calluses: It is equally true that calluses and other occupational marks are not confined to the hands. Painters and other mechanics using ladders bear calluses near the middle of both shins, resulting from pressure of the rung of the ladder above the one on which the workman stands. Violinists and viola players often exhibit a characteristic dermatitis at the side of the neck where the instrument is held. The sedentary worker, in addition to the hand marks of his particular occupation, may have pigmented areas below each buttock resulting from continued pressure on the chair or stool.

Sports, even if pursued only avocationally, may result in characteristic marks. The right-handed golfer usually has heavy calluses on the left hand. The discus thrower and the bowler have hand calluses in characteristic locations, as also do the racket wielders, the players of squash, tennis, and badminton. Professional sportsmen show characteristic stigmata in exaggerated degree; witness the cauliflower ear of the boxer (most often the left ear), and the permanently contracted little fingers of baseball players that are produced by injury in the act of catching.

Occupational stigmata have important practical value in aiding identification of comatose or amnesic persons, or of corpses. They also are useful in criminology, particularly if fingerprints are unavailable because of destruction of the finger tips mechanically or by disease.

The stigmata of various trades become less marked as advances in industrial hygiene demand use of gloves and other protective clothing. Conversely, the marks of mechanics or laborers sometimes appear among a certain group of sedentary wage earners; the enthusiastic commuters who delight in doing (Continued on page 174)

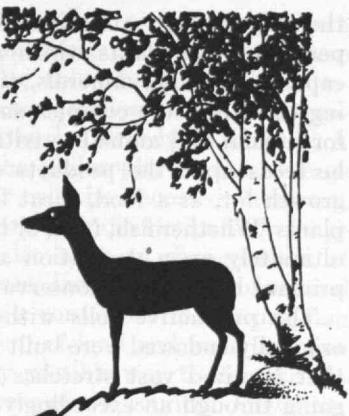


Calluses and stigmata occur more frequently on the front of the hand than on the back. Shown here are those of: 1, mason or bricklayer; 2, jeweler or engraver; 3, barber; 4, cobbler or shoemaker; 5, golf player; 6, stringed instrument player; 7, French horn player; 8, trumpet or tuba player; and 9, trombone player. The diagrams shown here are reproduced through the courtesy of The Journal of the American Medical Association.

Concepts in Conservation of Land, Water, and Wild Life

Under Proper Management, Natural Resources Can Produce Things of Value Indefinitely

BY IRA N. GABRIELSON



CONSERVATION is the wise use of our natural resources. Conservation is not a process of locking up those resources and keeping them for future use as is sometimes charged, but a concept of using wisely, and with care, those resources with which this land was originally endowed. These resources can be divided into two broad groups: the mineral or nonrenewable resources, which can be conserved only by utilizing them wisely and without waste, and the organic or renewable resources which, if properly managed, can continue to produce indefinitely things of value for the human race.

It is with this latter group that conservationists are now chiefly concerned. In the past there have been many conservation programs. There have been broad groups promoting the conservation of forests, wild life, soils, and most recently, waters. There are many smaller groups interested in single phases of wild-life conservation. Each of them has been more or less successful in proportion to the popular appeal and of the subject and the strength of the forces behind it. There are still many groups which are primarily interested in individual problems, but there is a growing public opinion that understands that the conservation of all renewable resources is inextricably intertwined and that it is difficult, if not impossible, to pick out any one element and carry on a conservation program for that alone without affecting, for good or evil, some other important elements.

Americans are proud of the fact that their energy and initiative have developed a great country in record time. There is no similar instance in history of a virgin land being developed into a great agricultural and industrial nation in so short a period of time. While there is much in this record of which the nation may well be proud, our achievements have been accompanied by an appallingly wasteful and destructive utilization of basic resources.



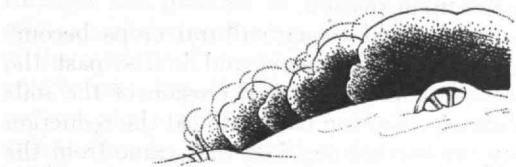
Virgin forests were cut, piled, and burned in order to make way for the plow; for years timber was, and is still, too often cut with appalling wastefulness of the present crop and a complete lack of concern for future forest growth. Land that never should have been farmed was broken; vast drainage schemes were promoted at public expense even when such schemes could have nothing but ill effects on the local and national economy.

Into this appalling wastefulness the three elements of ignorance, stupidity, and greed have entered conspicu-

ously. It can be said charitably that in the earlier days much of the waste was due to ignorance. With present-day knowledge of the past waste of the national resources, we can attribute a continuation of many of these practices only to stupidity or greed; it is hard to say which is the most dominant. In spite of the knowledge that is available for the asking, it is still possible for an unscrupulous promoter to enlist business men, the chamber of commerce, or other local groups in a dubious drainage or development scheme which lacks many or all of the elements that might make it successful. Despite the record of past mistakes, this nation is still dissipating and unnecessarily destroying the basic resources on which its future depends.

Someone once said that the future of the human race was entirely dependent on the top 14 inches of soil. Like many epigrams this one contains much truth. All food, most of the clothing, and many other products that fill everyday human needs are products of the soil and water. So far as the future can be discerned, they will always be so produced. The development of the great plastics industry has not changed this picture. While plastics can be substituted for many uses to which metals are now devoted, they cannot replace food and other essentials. In fact, plastics are made largely from products of the soil. Those that have been developed from petroleum products or by-products were living plants and animals at one time and those that are produced from cellulose are direct products of the soil.

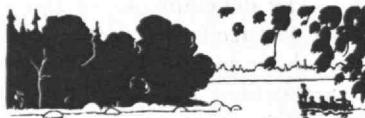
The rise and fall of many nations have been linked directly to abuse and destruction of that nation's soil. Many rose to greatness on virgin agricultural areas and declined with the destruction of the soil. The same historical sequence is inevitable in this country unless we learn to use more wisely the soils and waters of the United States. Scientists realize this keenly and have been trying for years to impress upon the general public the need for conservation. However, it took the spectacular dust



storms of the 1930's, resulting from wind erosion of the arid, drought-stricken plains country, to focus attention, even momentarily, upon some of the basic problems of maintaining our natural resources. Like all farm crops and animals, wild life, too, is directly dependent upon

the soil. In fact, all animal life, including man, is dependent upon plants which are the only living things capable of taking minerals, air, and water, and combining them into the complex substances that are required for human and animal nutrition. When man eats meat, he feeds upon the products of plant development and growth for, as a food, meat is only once removed from plants. Whether fish, fowl, or beast is eaten, man depends ultimately upon vegetation and this fact is one of the primary bases of the conservation concept.

The productive soils with which this country was originally endowed were built by a very complex process that required vast stretches of geologic time. Only by going through an exceedingly time-consuming evolution did soils become fertile and productive. Usually, the first step in the formation of soils is the breaking down and weathering of rock, as the result of wind, water, and temperature acting upon the rocks. Without forming immediately productive soils these rock particles contain mineral elements that provide basic fertility. These broken-down particles of rock may be moved, mixed, shuffled, deposited in layers, torn up and resorted by the action of erosive agents until they become capable of sustaining some type of plant life. A few plants are even capable of growing on the faces of solid rocks and the growth of their roots contributes to the actual breaking down of the rock. More and different plants can grow on newly broken-down rocks. As these plants grow and decay, the humus, which they create and return to the soil, enables other and higher types of plants to develop on the same area. Eventually a fertile topsoil is formed by the incorporation, with the mineral particles, of the decaying remnants of many generations of plants and animals. It is by this process that productive soils are built.



When the white man arrived in North America, he found a continent in which these processes had been going on for geological ages. As a result highly productive soils, naturally some better than others, were found. This natural process permits the return of all materials to the soil and as long as it continues, soils build toward a more productive condition. When the soil formation process is interrupted, as it is when man develops an agricultural program and begins to take away and market great quantities of the products of the soil, it is inevitable that soil building ceases and soil exploitation is started. Man recognizes this fact every time he fertilizes a piece of land, plows under a green crop, or spreads animal and plant wastes upon the soil.

Soils that are devoted to agricultural crops become more subjected to erosive agents and in the past the result has been that an accelerated erosion of the soils started immediately. Erosion has hastened the reduction of soil fertility far beyond any loss that came from the removal of the elements of fertility from the soil. Fluctuating streams, stream beds choking with silt at an extremely rapid rate, and other disastrous consequences follow destructive erosion processes. Soil destruction has been going on in America since the first settlers landed and is still affecting a major part of the land.

Net results are easy to see. At the present time, something in excess of 100,000,000 acres of formerly good crop land is now completely unproductive. Some of it will not return to productive capacity for many thousands of years and then only as a result of the slow natural soil building process. Some of it can be brought back more rapidly by careful handling. Another 100,000,000 acres are seriously damaged and nearly all of the present land used for agriculture has deteriorated appreciably because of our crude methods of exploitation. In excess of 100,000,000 acres of swamp, marsh, and lake lands have been drained by one device or another. In some cases drainage has produced good agricultural land and in others it has not. In either case, but little thought has been given to a comparison of the value of land in its original condition and its value for agriculture, wild life, and the preservation of natural resources after drainage.

When the white man came to America, he found a land that was adequately clothed in vegetation, nature's major instrument for retarding erosion. Both the character and density of the vegetation varied with the fertility and character of the land, the amount of rainfall, and the climate. The eastern half of this country was largely an unbroken forested area. In mid-continent the grasslands and prairies were completely clothed with a turf and in the more arid areas of the country desert-inhabiting plants with vast root systems performed the function of soil protection.

To a large extent this vegetative cover has been disrupted, some of it necessarily and some of it needlessly so. Under conditions of natural growth the vegetative cover performed other functions in addition to its value in inhibiting erosion. It forced water into the soil and held it there stored for the future use of the plants. It maintained ground water tables and gradually fed the surplus water into the streams. The natural cover of vegetation held to a minimum variation in stream flow and the stored waters fed permanent streams and maintained ground water levels with small variation even during long periods of drought. In other words, nature's method for protecting the land, building its fertility and productiveness, and storing water is the natural mechanism by which the soils and vegetative resources can be maintained to the greatest benefit to the human race. A wise national policy would disrupt this mechanism as little as possible.

Conservationists realize that a return to the natural conditions of centuries ago is neither possible nor desirable. The present population of the country could not be maintained on the low agricultural productivity that existed prior to the voyage of Columbus. Conservationists do believe that the greatest possible use should be made of this natural mechanism of soil preservation. The basis of conservation thinking is that man should work with nature and natural processes rather than in direct opposition to them. This basic concept may be translated into concrete practices by developing permanent vegetation of some sort for all land too steep to farm profitably or having such a soil texture as to be incapable of staying in place under agricultural conditions. In the eastern United States such a program requires the growing of forests, and in more arid sections of the country permanent grass or other ground cover is required. A cessation of drainage programs is desirable until a careful determination has been made of the present

value of the land and water and their products, the importance of undrained land in the storage of water, and the effect which draining may be expected to have on the reduction of flash runoff, not only locally but for the entire drainage area involved. Once a complete study is made, a comparison of present values with those that can reasonably result from the proposed drainage should determine whether or not the project is a beneficial one.

On lands devoted to agriculture, we must utilize the best available knowledge to prevent excessive erosion and to maintain soil fertility and productivity. Attainment of the desired goal may often require contour farming, terracing, strip cropping, grassing of runoff



strip, construction of farm ponds, and the employment of various other devices by which water is held on and forced into the land to the maximum possible extent. In areas that have been subjected to successive erosion, conservation requires a curative treatment involving gully control, check dams, and permanent vegetation.

Water

Acre for acre, water is often as productive a basic resource as land and the products of rivers, lakes, and ponds are equally valuable to the human race. The tremendous tonnage of fish, shellfish, and crustaceans used each year for human food and for other uses may be cited as one of the obvious values of areas covered by water. The natural water resources have been abused even worse than those of the land. Fisheries, particularly the inland and coastal bay fisheries, have declined tremendously due to overfishing, the blocking of streams by dams, pollution, or excessive erosion which has silted up the streams and lakes until they can no longer sustain the quantities and varieties of life that formerly thrived in these areas. Sometimes the decline of animal and even plant and human life is due to one of these factors alone but usually it is the result of a combination of two or more man-made troubles. Yet the productive capabilities are there; they have merely been abused.

There has been a slowly growing realization of the necessity for dealing with water control on the basis of an entire drainage basin rather than by isolated projects. It should be obvious that, in so far as possible, water management should start where the raindrop falls. To secure the greatest value from both land and water, agricultural and land management practices should be such as to retain as much rainfall as possible for use on the land. An understanding of this necessity has resulted in the development of a program of soil conservation which, by forcing water into the soil and by storing of water in small ponds, helps maintain ground water levels and takes maximum advantage of the combined produc-



tivity of the land and water. To the complete surprise of many people it is being demonstrated that water can often produce a value per acre that compares favorably

with that obtainable from the best production in farm crops. Slowly we are commencing to realize that there are better ways of utilizing this country's natural resources than to drain water-covered areas solely to provide larger crops which may be already in surplus. A revolutionary change in the philosophy of the average farmer and land manager will be required, however, before the detrimental effects of indiscriminate drainage are recognized; we shall also have to change some of our past engineering practices. Among students of natural resource problems there is a conviction that a program combining good management of land and water over an entire watershed is the only possible way to stop the dissipation of the basic resources of the country. Obviously to carry out such a program it is unnecessary to advocate valley authorities, or the program of any particular organization or group of engineers. Regardless of which group or groups do the work, there should be no more piecemeal planning and construction of projects for flood control, hydroelectric power, or other purposes.

Conservationists do not believe that it is either good planning or good national economy to flood great areas of good farm land above a dam in order to furnish flood protection to the same or less acreage below the dam. They do not believe that big dams are the solution to this basic problem. They realize that big dams have a place but they believe that the best use that can possibly be made of water is for it to contribute the utmost from the moment it falls on the ground. They believe that these programs should come first; that control at the source will provide greater immediate values than great impoundments far down stream. They believe that proper land and water management will render many flood control dams unnecessary. They believe that such dams as are a demonstrated necessity will silt up much less rapidly and be of use for a much longer period if the management of water starts at the source.

In other words, groups studying this problem from the over-all standpoint — conservationists, soil experts, biologists — believe that the cart is before the horse when flood control and water management are begun far downstream instead of at water sources. They believe that such programs as have been common in the past are more expensive, less efficient, and less productive for public good than the more logical but less spectacular utilization of water, initially, from the time it first falls on the land. Conservationists believe that land and water management should be combined and started with the raindrop; they most certainly do not believe that the control of water should be delayed until it becomes necessary to deal with great volumes of water which already have become destructive forces.

Another great abuse is the pollution of water resources through the practice of dumping untreated industrial wastes and domestic sewage into the streams and lakes of the country. This abominable practice has been tolerated because it provided a cheap and easy way of solving an immediate problem. Yet, the food and recreational values thereby destroyed would often show a loss of public values far outweighing the gains which the offending industry or community may have obtained by its shortsighted and thoughtless procedure. Pollution has played a big part in the decline of the shad fisheries of the Atlantic Coast, the oyster fisheries of the Chesapeake Bay, the inland fresh water fisheries of the Illinois,

and other rivers. Through dumping sewage and industrial wastes the nation loses each year a staggering sum representing the value of the aquatic crops that could be produced in the absence of polluted waters.

Conservationists believe that no individual or groups of individuals has the right to destroy publicly owned resources needlessly or for their own immediate profit. Both from an economic and a public health standpoint, it is becoming increasingly important to clean up the polluted waters and thereby to protect human health and restore the biological productivity of part of our natural resource machinery.

There is one way to accomplish this program. It is necessary, first of all, to stop immediately any new pollution of water; it is then essential to put into effective operation a program for abating the existing sources of pollution.

The Role of Vegetation

Reforestation or revegetation is the first line of defense in both erosion control and water management. Too late has the public realized the mistake in cutting forests recklessly, and the wastefulness of allowing land to pass into an irresponsible ownership in which no thought was given to the future. Still, much progress has been made in the last 40 years in public understanding of the necessity of revegetation and much public money has been spent in buying back lands suitable for reforestation.

Much of the rough and poor land of the western states is in public ownership and capable of being managed in large blocks with maximum permanent return. The publicly owned lands in the West are valuable chiefly for timber production, watershed protection, and recreational purposes. Some of them have value for grazing, but many of the more arid regions quickly deteriorate when overgrazed, a mistake that is easy to make in an arid land particularly during a drought period. This nation should not make the mistake of allowing highly productive lands to pass into private hands for the purpose of exploitation or destruction, for ultimately they must then be brought back into public ownership for revegetation at great public expense. We should learn by the mistakes of the past. The rough and mountainous lands of the country, the arid grazing lands, and the



deserts that are not suitable for agriculture should always remain in public ownership where they can be managed for the protection of all interests and still be made to produce some return.

The basic concept of conservation may be said to be the permanent revegetation of all lands not suitable for agricultural development. Such lands in which rainfall is adequate should be restored to forests and when restored, they should be placed under a program of management such as will produce a sustained yield. In that form they will return their greatest value to the nation as well as to the community in which they are located. The more arid lands should be returned to grass or other suitable forms of vegetation.

One of the great mistakes of World War II was the plowing up of vast areas in the Great Plains country which, conservationists hoped, had been permanently placed in grass following the spectacular dust storms of the 1930's. Much public money was spent on the effort to vegetate these lands. Now with high prices and a little better rainfall, it has been profitable to gamble on cropping this land. It is a gamble and droughts will again return to the plains. Will these landowners have either the resources or the understanding to put the land back into grass once prices go so low as to render the gamble unprofitable or when drought begins to cut returns to the same point. Especially when our government supports a program of high farm prices it is a good guess that they will not and that the public will again be called upon to pay the cost of returning these lands to the only use for which they are basically fitted. The protective vegetation can be utilized for grazing by livestock or wild animals. It can be utilized permanently only if the vegetative cover is not destroyed by excessive use.

It is hoped that this brief discussion of the role of vegetation has pointed out the importance of plants in the management of lands and waters. Plants are one of the great natural controls since they are highly effective in retarding erosion and regulating runoff. They furnish an indispensable part of the mechanism by which a suitable water table is built and maintained; they build continually toward a more productive soil and they manufacture all the basic foods utilized by all animal life, including man. Can there be any questioning of the belief of conservationists that all land not immediately needed for other purposes should be kept continuously vegetated as a part of any intelligent program of natural resource management?

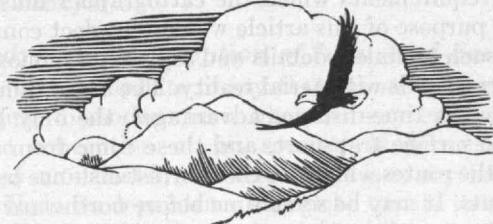
Wild-Life Management

Biologists and naturalists realize keenly that the ultimate fate of wild life is tied up inextricably with the management of the lands and waters. They realize that a good crop of wild life cannot be produced on poor and worn-out land any more than a good crop of cattle or corn could be produced on the same land. There is a popular belief that any piece of waste land is adequate for wild-life production. This belief prevails because wild life, often crowded into such areas, survives in minimum numbers on marginal areas. That does not mean, however, that good crops of wild life can be produced profitably on such land. For this reason wild-life biologists are keenly interested in maintaining the highest possible productivity of the lands and waters.

There are types of wild life fitted to live under almost all possible normal variations in vegetative cover and under varying climatic conditions. A reforestation program cannot but help certain types of forest animals. If that reforestation program is wisely carried out, the wild-life values are enhanced. As the timber grows, conditions become better for some forms of wild life and worse for others. A forest slows down runoff as duff accumulates. Streams which had become intermittent because of forest destruction, often become permanent streams once more as reforestation progresses. Likewise, in areas suffering from excessive erosion any sound program of soil conservation cannot but help wild life to some extent. If some thought is given to wild life at the time this program is laid out, this benefit can be multiplied many times.

Many flood control programs, hydroelectric developments and reclamation projects have been very destructive to fish and wild life. Often this has been needless since experience shows that some consideration would have provided an opportunity to salvage many fish and wild life values.

Although one on which it is difficult to evaluate in a monetary sense, the greatest single benefit of wild life is the incentive it affords man for wholesome outdoor recreation. The outdoors still has a major appeal. People go out-of-doors not only to hunt and fish, but to look at and photograph birds, mammals, and scenery. Their



methods of enjoying these resources are diverse and that is one of their most wholesome values. There has been an epigram circulated for many years that more film is utilized in photographing wild life than is used on any other subject except babies. A total of 9,854,314 hunting licenses were sold in the United States during 1946 and 11,068,717 fishing licenses were recorded in addition. This is a record amount, but the number of such licenses has grown steadily each year since 1918 when records first began to be kept on a wide scale. Yet these numbers represent only those who are required to obtain a license to hunt or fish; they do not include the great many who can hunt or fish without licenses, nor those who get their fun out of wild life in other ways.

From an economic standpoint, however, wild life is also of great value to the country. The fish and other products taken from the streams, lakes, and coastal waters of this country amount to from four and five billion pounds a year. They furnish a source of wholesome protein food that costs little to produce if the nation gives nature a chance and works with her rather than against her. The only thing the human race is called upon to do to preserve the fisheries is to refrain from destroying the environment on which the fish depend and to regulate their take out of the fish populations so as to leave adequate breeding stock. It seems small enough an investment to guarantee such a quantity of wholesome and nutritious food. A rather hasty survey has shown that the combination of overfishing, drainage, pollution, and siltation of streams and lakes has cut a potential two billion pounds a year from possible commercial production.

While engaged in recreation, hunters and fishermen take approximately three-quarters of a billion pounds of meat and fish annually in this country. This harvest could be appreciably increased if intelligent management were applied to the lands and waters.

Fur-producing animals furnish the incentive and the economic return which pioneered much of this land and the fur taken in the United States under present lack of suitable environment and depleted stocks of fur bearers still aggregates \$50,000,000 to \$60,000,000 a year. It could be several times that much if this resource had been managed more wisely. There are acres of marsh-

lands, for example, that produce more net return per acre in muskrat fur alone than similar land produces when drained and placed under cultivation.



In addition to these direct values, there is a tremendous business, estimated at two billion dollars annually, in furnishing accommodations, and in providing outdoor clothing and hunting and fishing equipment to those seeking recreation and relaxation in the outdoors. It is one of the major businesses in the country and has a peculiar value in placing much of the money expended for this purpose in the remote and poorer sections of the country. With lands revegetated and properly managed, this business can be increased.

The basic concepts may be summarized as follows: Conservation involves wise use of renewable resources of the country so as to obtain a perpetual harvest of the production of the lands and waters. Profitable production of American farms and forests can be maintained only by adequate management of the soils to prevent destructive erosion. Water control and land management should go hand in hand and should start from the moment rain falls on the land. There should be a co-ordinated program over an entire watershed in order to maximize the benefits of conservation. So far as possible, water should be stored in the land where it falls and it should be used to produce crops, to keep the stream flows regular and steady, and to provide ground-water supplies for human and agricultural use. No more land should be drained without careful consideration of its value in the over-all management of water and its total productive capacity before and after drainage. No more pollution should be permitted to start and existing pollution should be cleaned up as rapidly as possible. Once the pollutants have been removed, polluted waters are capable of producing as great a crop of fish as ever. All lands too steep, too light, too sterile to be used profitably for intense agriculture should be revegetated. In the more humid areas lands must be reforested; in the arid sections grass or some of the more arid land plants will have to be restored. The imperative need is to maintain an adequate vegetative cover on all lands not needed for more intensive use. Problem areas, in particular, should be maintained in grass cover even at the expense of some incidental uses which might be obtained from them. Wild life is a crop that must be grown the same as any other crop; its production can be integrated with intelligent and better management of lands and water. The recreational value of wild life is intangible but tremendously important; the monetary and economic value amounts to billions of dollars annually.

The intelligent management of renewable resources is the major problem before America today. While the strikes, divorces, murders, baseball games, and many other features fill the headlines and attract momentary attention, the future of this country depends upon how well its remaining resources are managed, and how effectively the resources can be restored where ignorance, greed, or stupidity have destroyed their productivity.

Aerial Dimension

Man Finds Aviation in the Process of Boldly Altering Many Aspects of Contemporary Civilization in Recompense for Flight

BY PAUL MEADOWS

THROUGH aviation the third dimension is daily recognized as a salient element of modern existence.

Through aviation the two-dimensionality of industrial peoples has been intensified and facilitated. Aerial technology has created a new tempo and a new temper in industrialism. Moreover, it accelerates a culture which must be and is becoming air-conditioned. This change in the face and spirit of contemporary civilization, still in process and in prospect, may be seen from at least four points of view: geographical, industrial or social, political, and psychical.

Aerographic Conception of the Earth

First of all, the aerial dimension of modern man is bringing him to a new, an aerographic, conception of his earth. This new orientation to the earth can be seen in the new maps. A map is a picture of space. Historically, the map shows the widening knowledge of the globe which comes from exploration, pioneering, industrialization. Sometimes map makers lie, consciously or unconsciously. "Attention is necessarily directed," General McClellan of Civil War fame once wrote, "to the erroneous maps in our possession." An Air Corps general can make the same comment about most of our present-day global maps. In preaviation days, we became accustomed to flat, Mercator projections. They showed regions of the globe, nicely patterned into isolated continental systems of land masses and bodies of water. Such a projection is primarily designed for the construction of nautical charts where course bearings are of principal concern. From the point of view of an aerographic conception of the earth, the Mercator type of map, always artificial, is obsolete and misleading as well, particularly as regards the relative areas near the two Poles.

Wrote Antoine de Saint Exupéry in his *Wind, Sand and Stars*:¹ "The airplane has unveiled for us the true face of the earth." In preaviation days, when men's activities were bound by land and water, the distortions of a Mercator map were rather unimportant. Aeronautically, however, a new global picture has become imperative. For example, a map which focuses on the North Pole and arranges land and water systems around that center, polar rather than Mercator projection, is of revolutionary value to aerially minded people. It not only lays out new routes of world travel, the Great Circle route of Northwest Airlines, Inc., for instance, but it reveals a new earth for that hemisphere which contains by far the major portion of the world's inhabitants. Cartographers speak of it as a monospheric earth.

It is recognized, of course, that no system of depicting the global earth on a plane is completely satisfactory. Moreover, various types of projections best serve the con-

¹ New York: Reynal and Hitchcock, 1939. \$2.75.

flicting requirements which the cartographer must face. For the purpose of this article we may neglect consideration of such technical details and say that a monospheric map corresponds with aerial reality. The aerial dimension must deal in time-distance advantages, the only kind it has over surface transport, and these come from adherence to the routes which are the shortest distance between two points. It may be some time before northward flights across the top of the globe are economically feasible on a mass scale, but for most of the world's population long flights necessarily traverse polar regions. Such flights bespeak the logic of the air. The time-shrinkage of the earth — no point on the earth's surface more than 50 hours away from any other, we are told — is more than a by-product of the airplane: It is literally the geographical revolution which William A. M. Burden, Assistant Secretary of Commerce, once said is contained within the airplane itself.

Aerial travel has revealed to us not only a new earth but a new heaven. We have come to understand that the atmosphere has a topography of its own: The survey of the "surfaces" of the air, so to speak, has become a task no less dramatic, and probably far more daring than has been the study of the land or sea. "Things are queer in the upper reaches," comments one of Saint Exupéry's characters. Such problems as are presented by flight in the stratosphere, breaking the supersonic barrier, or the recording and prediction of weather on a global scale, call for skills at least as learned, planning at least as comprehensive, teamwork at least as extensive, and heroism at least as bold as was ever reported in the annals of land and sea explorations. Better still, the work has just begun.

"Aviation," according to Charles Hurd, New York journalist and aviation specialist, "is recasting our maps, rewriting our geographies, and upsetting our sense of direction."² His reference is not merely to the fact that aviators, like the cowboys of the 'Seventies and 'Eighties along the Chisholm trail, are pointing northward. He alludes rather to the characteristic that, unlike surface transport, aerial travel has no absolutely necessary discontinuities. Only in part do the discontinuities of the air come from the absence of aerial barriers. As British geographer, James Fairgrieve, has pointed out,³ they arise also because the lands north of 30 degrees, grouped around the Pole, are along Great Circle routes and are fairly continuous. These lands are likewise those of greatest human settlement and industrial development. An air map of the world, as American Airlines, Inc. demonstrated in their famous global map, does not divide the air into parts; the

² Weigert, H. W., and Stefansson, V., "World Airways," *Compass of the World*. (New York: The Macmillan Company, 1944), \$3.50. Page 109.

³ Weigert and Stefansson, "Geography and World Power." *Opus citatus*, page 190 ff.

aerial component of modern civilization is one unit, unbounded and universal.⁴ The modern aviator, like Saint Exupéry's friend, Mermoz, who flew the trans-Andean air mail in the early days, is engaged in throwing bridges across the Saharas, the Andes, the Seven Seas — indeed across the entire world.

In 1755, George Washington wrote: "I herewith send you a small map of the back country." The American airman's back country has changed tremendously, both in scope and location, in the two centuries since surveyor Washington wrote his letter. What was once a global back country promises to become little more than a global backyard.

Aerodynamic Conception of Industrial Society

It is also appropriate to say that the aerial dimension is bringing to modern man what we may call an aerodynamic conception of his society. Modern Western culture is industrial in character. This is to say that it is globe wide in its dependence and globe wise in its aggression. A global product itself, the airplane is both a symbol and an agent of technological advance. Machine technology accents speed and power: It fosters the use of mechanical power for increasing the speed of movement of both men and materials. Speed through space, through process, through time are all expressed in aeronautics, in conscious means for reducing the contraction of time, distance, and cost. In terms of travel time, the shrinkage of distance was given impetus by the war but it becomes no less imperative in peace. A society whose members may travel at, or even beyond, the speed of sound is no idle dream but an imminent military and civil reality.

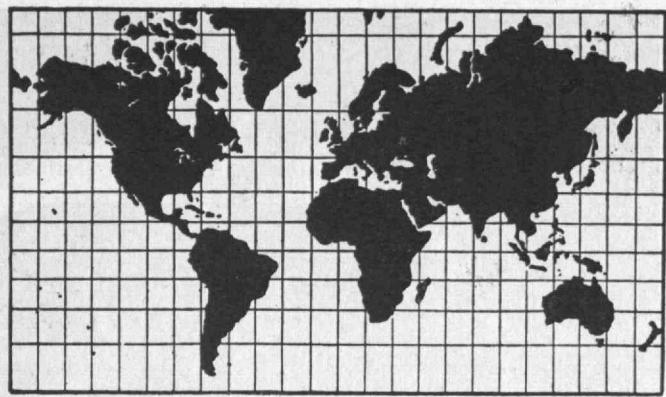
The aerial assault on space and time has already had, and will unquestionably continue to have, some very striking social consequences.

Its impact is most notable, of course, on the transport of men and materials. The air wing of industrial civilization, aside from (and perhaps in spite of) its manifest military values, is fundamentally a transport vehicle. Chicago sociologist and aviation specialist, William F. Ogburn, has found that scheduled transport of passengers in the United States showed an annual rate of growth in passenger-miles flown of 30 per cent for the 1930 decade.⁵ He has estimated that by 1953 between 6,000,000 and 8,000,000 passenger-miles will be flown annually. He has extrapolated air cargo data and has suggested that very probably 15 to 20 times as much cargo will be flown in the first few years after World War II as was carried in pre-war years. His forecast for international travel for the latter part of the postwar decade is for from 650,000 to 1,000,000 passengers. Aerial transportation not only makes possible the opening up of new markets in distant areas but it stimulates business activity. Partly as a result of the new markets, which it alone can reach, Ogburn holds that aerial transportation will undoubtedly speed up already existing trends in marketing; it will enhance special orders, specialty goods, direct selling from producer to retailer, national and international markets, and can quicken business transactions.

The new agencies embodied in aviation have certain inevitable effects on technological change. Concerning

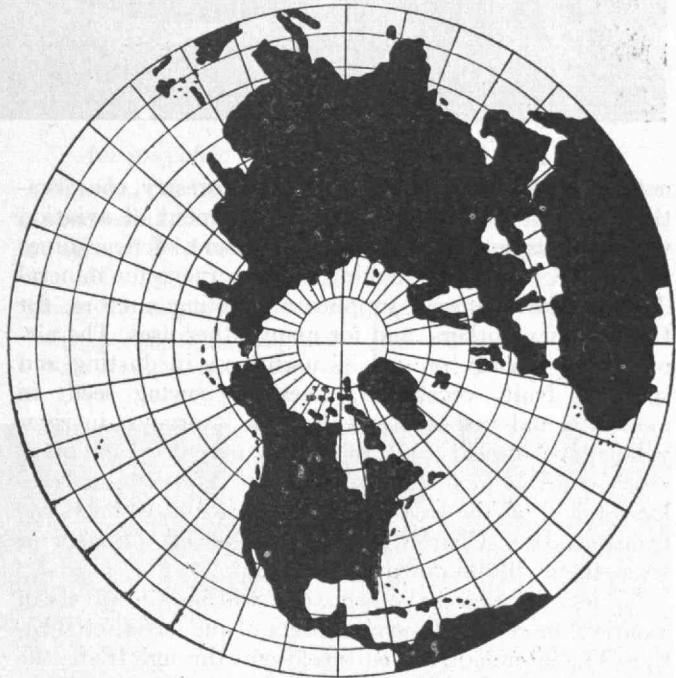
⁴ Hutchison, Keith, *Freedom of the Air*. Public Affairs Pamphlet #93. (New York: New York Public Affairs Committee, 1944.)

⁵ Ogburn, William F., *The Social Effects of Aviation*. (Boston: Houghton Mifflin Company, 1946), \$5.00. Pages 118-120.



No plane representation of any appreciable portion of the earth's surface is without objectionable distortion. The type of map most suitable for any purpose depends in large measure therefore on the principal uses to which such diagrammatic representation is to be put.

Mercator's projection of the world, shown above except for extreme polar regions, correctly portrays directional courses, and therefore became a popular type of map when voyages to the New World opened up to exploration vast new continents toward the end of the Fifteenth Century. Regions near the polar regions are greatly exaggerated in size, however, as is indicated by examination of Greenland.



The preponderate amount of air travel has tended to follow great circle routes over the Northern, and more heavily populated, Hemisphere. Any one of many possible polar projections, such as the Lambert projection shown here, emphasizes the importance of arctic travel and is superior to the Mercator projection in reducing distortions for that part of the globe which is of primary concern in long-distance air travel.

the processes of technological innovation enough evidence has been accumulated that predictions can be made intelligently. Modern industrialism not only builds on the foundation of past inventions in a given field but it promotes the transfer of a technology from one field to another. Concretely, aviation would have been altogether impossible without the internal combustion motor. But with the aid of the aerodynamics learned from the utilization of the gasoline engine, technologists have gone on to develop jet propulsion; an age of rocketry is, without question, in the offing. In the same manner, the aerial technologies have been put at the disposal of other tech-

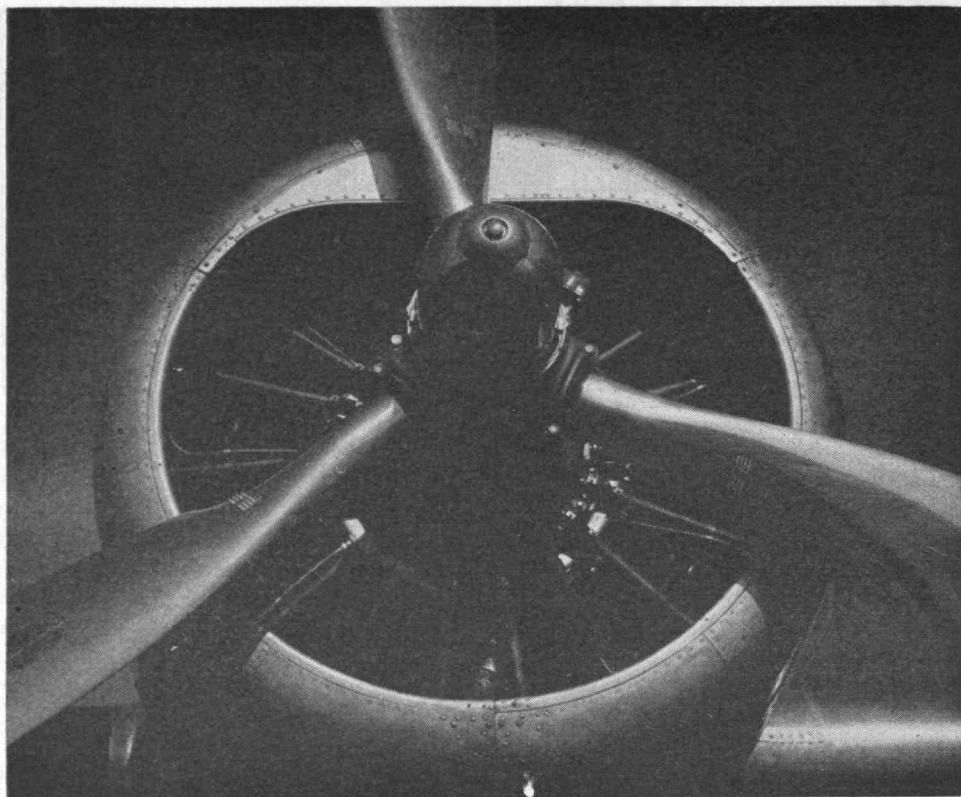


Photo by Samerjan from Black Star

nologies including mining, agriculture, forestry, conservation, and, of course, war. The employment of aviation will be indispensable in the development of new mines and mining areas, for making aerial surveys for mineral deposits, for flying in supplies and flying out ore, for transporting workers, and for many other uses. The airplane has already proved its usefulness in dusting and spraying fruit, vegetables, trees; in sowing seed; in mosquito and rust abatement; in soil surveys; in river valley development work; in wild-life inventory and predatory control; in forest fire fighting. Already airplanes have taken off the cream of land-borne and water-borne transportation. Charles Hurd has observed, "Sooner or later, they will dip down into the milk."⁶

No less dynamic have been, and will be, the effects of aviation on certain human aspects of industrial civilization. The interchange of cultural items through trade, the exchange of cultural ideas through travel, the mutual flow of purpose and plan can hardly be stopped, although it may be postponed by iron curtains dropped here and there on the globe. Industrial culture, like water, will seek its level, and in an aerial civilization it is a rising level of industrial art and aspiration. Death rates will go up from war and accidents, but they will be pulled down by arially transported medicines, food supplies, and knowledge. Population will continue to flow, as it always has, along the lines of travel, and new settlements will be opened up along the air routes. The cultural dominance of the great cities will inescapably widen; indeed, it has already. New threats to public health from air-borne causes and new problems for medical research are emerging. The airplane is already competing with the automobile as a mode of recreation, and the public, both spectator and participant in competitive sports, is yearly being enlarged. Sadly enough, aerially mediated crime —

smuggling and the disposal of stolen goods and of criminals — must be debited against the airplane.

The hastening tempo of existence in the air age is both an index and the agency of the evolution of industrial civilization. Sociologists are fond of saying that a society is coterminous with the limits and speed of communication. An aerodynamic society is beginning to discover, how literally, perhaps also how magnificently, true that statement is!

Aeropolitical Conception of the State

The aerial aspects of modern industrialism are leading to a transformation in the contemporary thinking about the state, to an aeropolitical conception of the state.

Sociologist Hornell Hart of Duke University has worked out an interesting correlation between the speed of transportation and the size of empire: The faster the transport, the larger the empire can be. Whether this association is, or will continue to be, true in the field of political behavior, it should be quickly apparent that the airplane has magnified our realization of the land and water boundaries of the nation-state representing political discontinuities of the earth's surface. The aerial maps may not show them, but in point of fact there are all kinds of boundary lines staking off the sky's dimensions. Air routes are not merely commercial; they are perhaps, even more significantly, political and military.

In 1902, Paul Fauchille, French jurist, opined: "The air is free. The states have no authority over it in time of peace or in time of war other than that which is necessary for their own preservation."⁷ However, World War I made another thesis more urgent, and in the Paris Convention of 1919 the first clause read: "The high contracting parties recognize that every power has complete and exclusive sovereignty over the air space above its terri-

* Weigert and Stefansson, "World Airways." *Opus cited*, page 113.

⁷ Hutchison, *opus cited*.

A global product itself, the airplane is both a symbol and an agent of technological advance. Aviation would have been altogether impossible without the internal combustion engine. But with the aid of the aerodynamics learned from the utilization of the gasoline engine, technologists have gone on to develop jet propulsion; an age of rocketry is, without question, in the offing.

tory." Freedom of air passage and the establishment of what was then called "international airways" was made conditional upon the consent of "the states flown over." In spite of the International Civil Aviation Conference which met in Chicago in November, 1944, with 54 nations attending and despite the agreements of that Conference, tremendous problems remain to be solved, as may be seen in the fact that a world system of airways is not yet, and perhaps may never be, a matter of fact.

The difficulty is only partly economic. In 1927, General Baranov, then head of the Soviet Air Force, took occasion to explain that the development of a network of air lines "is one of the most powerful methods in the struggle for new markets."⁸ The struggle for airways is highly competitive, company against company, nation against nation. But the economic subtly shades into the political, and "the freedom of the air" becomes a weapon of the political state no less than did "the freedom of the sea."

The influence of Mahan on our thinking about the importance of the air is very marked, as Eugene Wilson, of the United Aircraft Corporation and chairman of the Board of Governors of the Aircraft Industries Association, has pointed out.⁹ Admiral Mahan's doctrine of sea power posited a "fleet-in-being," backed by a merchant marine and a seafaring people. Similarly, the contemporary doctrine of air power, aside from the verbal battles over sea *versus* air power, builds on the Mahan pattern. If capable of supporting a military and industrial establishment of any size, the modern political state cannot avoid seeing the advantages in a commercial air-transport system able to back the air fleet if, and as, it may be aided and abetted by an air-faring people.

⁸ Hershey, Burnet, in *Skyways of Tomorrow*. Headline Series, #47. (New York: Foreign Policy Association, 1944), page 42.

⁹ Stuart, John, in *Wings over America*. Public Affairs Pamphlet #114. (New York: New York Public Affairs Committee, 1946.)

In many ways so modern a thing as the geopolitics of Germany's geographer, Haushofer, has already been rendered passé by the airplane. His geographical and political creed, more or less followed by the Nazis, was thoroughly dominated by what Eugene Staley has so appropriately called "the myth of the continents."¹⁰ Possibly, the Mercator maps are mainly responsible for his belief in the continental system of isolated land masses neatly arranged in a descending order of importance around the Asiatic "Heartland." Haushofer to the contrary, today, in the aerial age, he who controls the polar approaches controls the world. That fact brings all regions of the world into vulnerable relationship with one another. The whole concept of buffer states needs a polar reorientation. Likewise, the myth of hemispheric defense must sooner or later come to terms with the highly lethal strategies of monospheric offense *via* air.

General H. H. Arnold, reviewing American aviation history, put the aeropolitical conception of the nation-state on a time scale which, unfortunately, too few people really understand. "In this spectacular conquest of time we have already on the horizon the techniques which, when realized, will cause us to measure distances in terms, not of miles, but minutes."¹¹ The power and the vulnerability of the modern state which this fact implies, particularly in an age which must be called atomic as well as aerial, can only give mature minds a painful pause.

Aeropsychic Conception of Human Living

Finally, the aerial dimension of modern industrialism is succeeding in crystallizing, perhaps none too perfectly, an aeropsychic conception of the human being and his way of living. It is impossible to catalogue all the ways in which the airplane is entering, (*Continued on page 178*)

¹⁰ Weigert and Stefansson, *opus cited*, page 89 ff.

¹¹ *Air Force*, November, 1946, page 18.

As if astonished at the changes which have been brought about in human relations by progress in aviation, the nose of this plane assumes an almost human expression, appearing to gaze heavenward with open mouth.

Already airplanes have taken off the cream of land-borne and water-borne transportation; soon they will dip down into the milk.

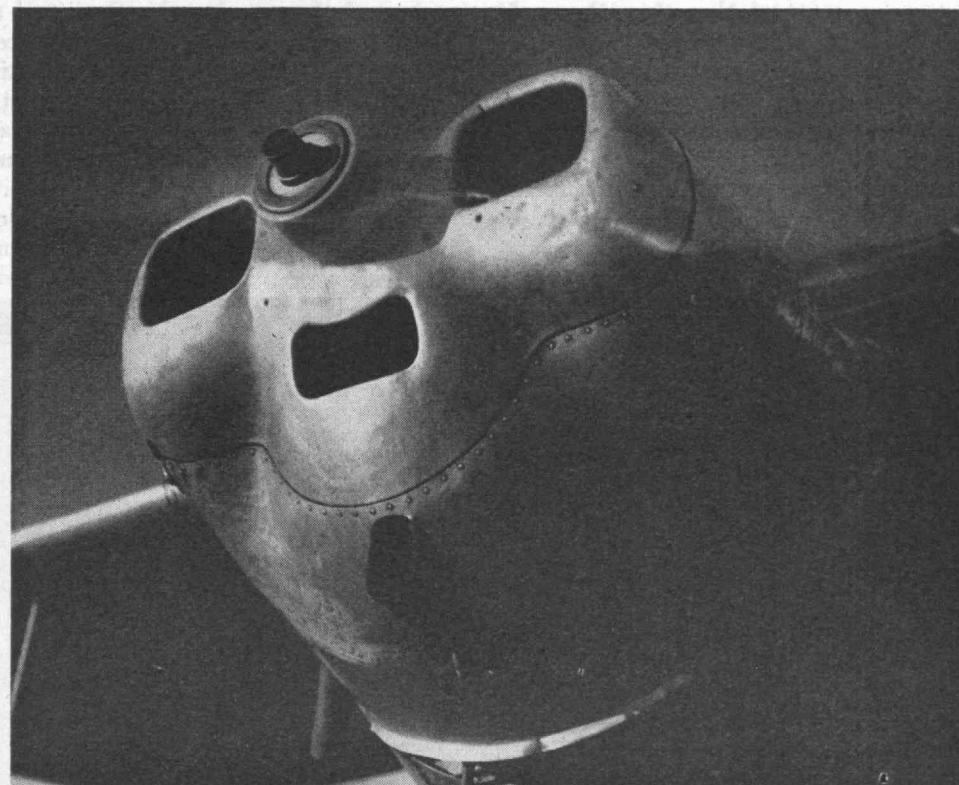


Photo by Samerjan from Black Star



Faculty in Relaxation

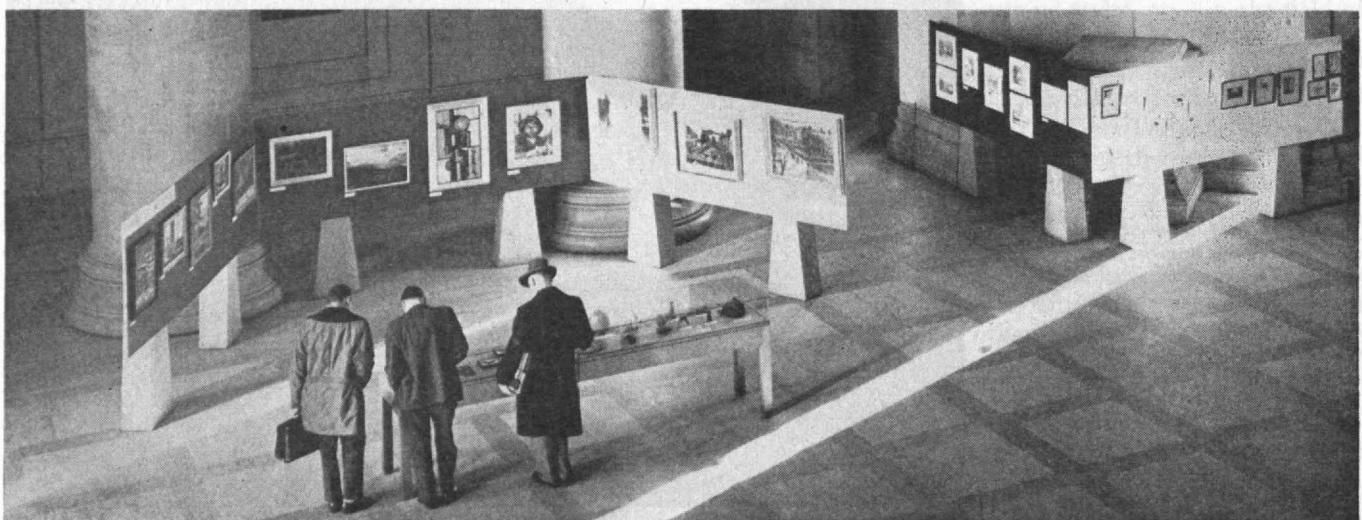
MORE than two dozen talented Faculty members at M.I.T. displayed art objects of their own creation in a Faculty Club art exhibit which was held in the lobby of the Rogers Building during the early part of December. Since the exhibit was intended primarily for the display of the creations in the field of art (excluding photography for which a separate exhibit was provided last spring) it represented only a part of Faculty interest and participation in general extracurricular activities. Nevertheless, in focusing attention on the artistic pursuits of the M.I.T. Faculty, the exhibit demonstrated with ample force that engineers and scientists do not differ radically from other well-rounded individuals in spite of the rigors of their work. Broad interests in fields other than those of narrow specialization are especially important among those who aspire to lead and to educate.

As might have been expected in an art exhibit, oil and water-color painting led the field, both in number of entries and also in the number of artists whose work was represented. Some of these bore the air of a professional touch as did also a group of pen and ink book illustrations. Pencil sketches were also in evidence and one man whose

professional background is in biology surprised his colleagues with the quality of etchings he had made. As for subjects chosen for artistic expression, these ranged from portraits and landscapes to animal life and modern abstractions.

Artistic talent and appreciation were displayed in related fields as well. A number of Technology's academicians found relaxation in woodwork. Delightful wood carvings of birds and four-footed animals, along with an example or two of ivory carving, were the product of one member. Another chose to supplement his utilitarian handicraft by illustrating the progressive steps in the carving of briar pipes.

Pottery work made and decorated by a research worker, hand-painted china by a mechanical engineer, and portrait heads in terra cotta by a professor of metallurgy gave a certain air of practicality to the Faculty's display of artistic ability. Representing the practical arts pursued by M.I.T. teaching and research staff were examples of bookbinding and Indian figure weaving. Few who viewed the exhibits illustrated on this page would otherwise suspect the considerable talent shown by one professor of electrical engineering (*Continued on page 180*)





... . . . Students at Play

ATHLETIC contests with other New England colleges provided the focus for a week end of play at M.I.T. when 1,400 students and guests set aside December 5 and 6 for a program of healthy recreation. The event, known as Techsapoppin, was intended to bring to M.I.T. some of the social and athletic events which are contributing factors in the development of well-rounded individuals. The Administration has recently provided expanded facilities and personnel for advancing intramural and intercollegiate sports as a major part in a program to give the Technology student a more complete school life, and consequently it encouraged student initiation and management of the Techsapoppin week end.

The week end began at 8:30 on Friday evening, December 5, with a basketball game in which M.I.T. played Boston University at Mechanics Hall in Boston. An informal Saturnalia dance followed the game which was won by Boston University. During the dance, a student board of judges selected a group of candidates present from which the Queen of Techsapoppin and Six Princesses of Sports were to be chosen on the following evening in the Great Court.

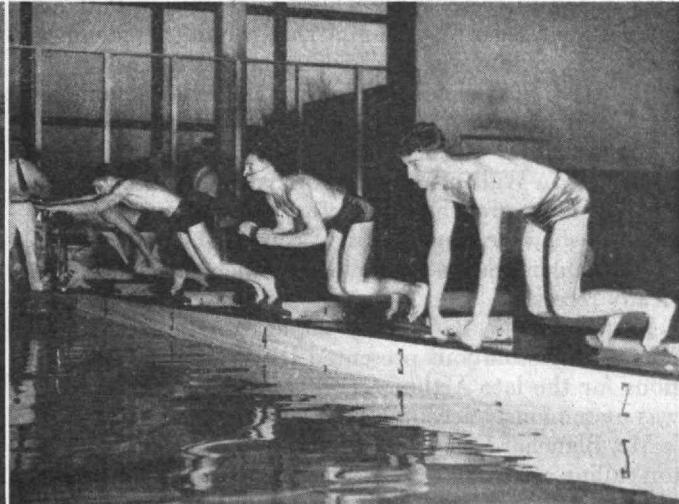
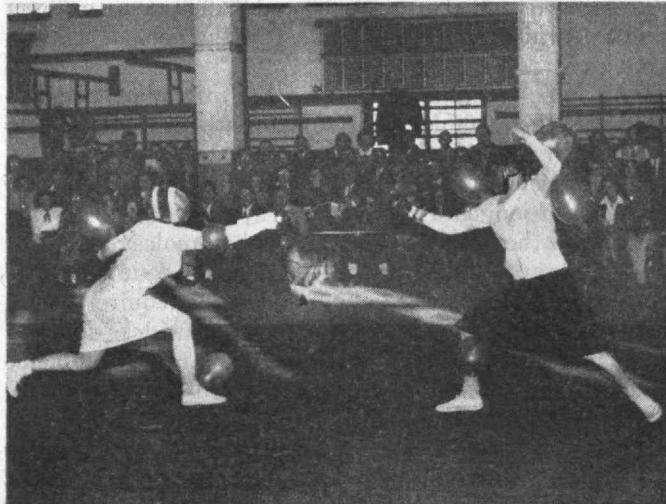
On Saturday, December 6, Techsapoppin events began at 1:45 with a fencing exhibition in Walker Memorial. The M.I.T. Fencing Team, which was undefeated and

won the Eastern Intercollegiate Championship last year, put on such unique matches as a dagger and sword bout and a duel on roller skates.

At 2:30 the M.I.T. Wrestling Team met Brown University in the State Armory on Massachusetts Avenue, opposite Technology. The Alumni Pool was the scene of another M.I.T.-Brown contest. In the third intercollegiate contest of the afternoon M.I.T. defeated Wesleyan University in squash.

At 7:30 on Saturday evening, a large and enthusiastic group gathered in the Institute's Great Court to witness the final selection and crowning of the Queen of Techsapoppin. A Wellesley College senior, Miss Dorothy Williams, was named Queen by a jury consisting of Karl T. Compton, President of M.I.T., Francis W. Dahl, cartoonist for the Boston *Herald*, and John R. Powers of the Powers Model Agency. The six Princesses of Sports were all from schools in Metropolitan Boston.

Private automobiles and chartered busses carried the students to the Boston Arena where M.I.T. played the New England Intercollegiate Champions of Boston University in a hard and fast hockey game in which Boston University won over the M.I.T. team. The fraternities held open house after the game until the week end was officially brought to a close. (Concluded on page 182)



THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Zinc in Your Veins

GAATHERING for the 259th meeting of the Alumni Council in the Graduate House on November 24 were 117 members and guests, Raymond H. Blanchard, '17, President of the Alumni Association, presiding. Bernard P. Gregory, formerly an officer in the French Army, and now a graduate student in physics and electrical engineering, was the student guest introduced by Professor Avery A. Ashdown, '24. Christian J. Matthew, '43, took a bow as new alternate member on the Alumni Council, and E. Charlton Crocker, '43, newly elected representative of the M.I.T. Association of Japan, made an appeal for technical publications of any kind published within the last decade, to be transmitted to Japan where they will become a permanent part of the library of the Imperial University of Tokyo.

In the secretary's report, Charles E. Locke, '96, reported that since the last Council meeting, 25 Faculty and Alumni members of the staff had paid visits to 16 local M.I.T. clubs, geographically distributed from Havana to Wellesley, Mass., and from the Atlantic Coast to Dallas. Professor Locke also announced that the executive committee proposes to set up a sample constitution to serve as guide for classes about to be graduated and also for older classes who may wish to adopt such a constitution for the conducting of their class activities.

President Blanchard called on H. E. Lobdell, '17, Executive Vice-president of the Alumni Association, who gave a brief and stimulating report of his recent visits to a number of clubs as far south as Havana. Mr. Lobdell reported that the clubs he had visited were all active and very much interested in affairs at M.I.T. In particular the M.I.T. Club of Cuba was welcomed as a newly formed group of loyal, active, and exceedingly hospitable Alumni.

William W. Garth, Jr., '36, chairman of Alumni Day 1948, reported that the organization of his subcommittees was practically completed and that details of the Alumni Day program were approaching final shape. Full announcement regarding Alumni Day committee membership and program will appear later in The Review.

Robert C. Casselman, '39, chairman of the Committee on Assemblies, reported that arrangements for the Mid-winter Meeting of the Alumni of Metropolitan Boston, to be held in Walker Memorial on Saturday, February 7, 1948, were progressing satisfactorily. He promised an attractive show or demonstration comparable to the television demonstration of last year which was enthusiastically received.

Professor John B. Wilbur, '26, chairman of the Committee on Resolutions presented the committee's resolutions for the late Arthur G. Robbins, '86, which report was unanimously accepted by a silent rising vote.

Mr. Blanchard then read a letter from President Compton calling attention to the suggestion, made by members of the Advisory Council on Athletics, that this Advisory

Council be replaced by a new Athletic Board, and requesting the Alumni Council to nominate two members to serve on this newly created Athletic Board. The Alumni Advisory Council on Athletics has faithfully carried responsibility for the general supervision of student athletics for half a century and the replacement of this group by a new organization was done with some nostalgic regret. At the same time, the Advisory Council on Athletics had realized for some time that enlarged postwar enrollment at M.I.T. made another type of organization better fitted to conduct the athletic needs of present-day students. The formation of the Athletic Board is treated in greater detail on page 162.

In speaking of current developments at M.I.T., President Compton discussed what he called "operations analysis" pointing out that since it is based on a thorough study of operations of a complete or over-all system, operations analysis, to some extent, tends to envision the future. Operations analysis is an effective means of studying all significant activities of an entire system. It was employed during World War II with gratifying results, as reported by Philip M. Morse in the November, 1946, issue of The Review. At the present time, the Institute is co-operating with the Navy in further developing research and training programs for operations analysis. There are possible applications to many broader fields than have thus far been investigated. President Compton humorously implied that the general method may even be applied to an examination of the functions and operations of M.I.T. itself.

President Blanchard then introduced Robley D. Evans, Professor of Physics at M.I.T., who spoke on "Some Recent Medical Applications of Radioactive Isotopes" from the point of view of the physicist rather than of the physician. He traced the growth of the Radioactivity Center at M.I.T. from 1934 to the present time when about 50 persons are employed on research projects using equipment worth about \$330,000 in a program which calls for an expenditure of \$15,000 monthly. To date, some 200 technical papers have been produced at an average cost of between \$1,000 and \$2,000 each — 23 per cent of which have been applied in the field of medical research.

An important medical application of radioactive isotopes is their employment to tag or "paint" atoms so that their individual movements can be traced. For example, use may be made of three typical radioactive batches of iodine. The atoms are synthesized into molecules and the position of the individual molecules can be detected and traced by Geiger-Müller counters. The problems to be solved in such a project require the co-operative teamwork of groups trained in widely different fields. But through such co-operation many problems yield to analysis, not only in the medical field but in other fields as well.

For example, by using radioactive ball bearings it is possible to determine how many atoms come off a ball bearing in the process of rolling across a metal block.

By radioactivating sulphur, it becomes possible to study the progress of sulphur through the coking process of coal. Analysis of the radiation as radioactive particles are lowered into the earth provides a method for logging the composition of the earth's surface, even in a cased oil well where there is no direct access to the strata.

One of the most recent studies which have been pursued at M.I.T. and elsewhere has been on radioactive zinc which started with the study of white cells in the blood. The successful use of radioactive tracer atoms in investigations of the red blood cells and the causes of anemia has initiated studies of the behavior of white blood corpuscles. A procedure for separating the white from the red blood cells was first developed. Spectroscopists then found that although present in a very small amount, zinc was the predominating element in the white cells. Radioactive isotopes of zinc were next prepared, injected into the blood stream, and their course through the body was observed. By means of such tagged radioactive zinc atoms, it was discovered that radioactive phosphorus retards the propagation of white cells. It was also found that the amount of zinc in the white cells of persons suffering from leukemia is only 10 to 20 per cent as much as in that in the white cells of healthy persons, and that leukemia patients have a great excess of white cells. Research now going on appears to give good promise for overcoming leukemia by the use of zinc in some way not yet fully ascertained. The work, still in its early stages, is advancing through the wholehearted co-operation of scientists in several fields at M.I.T. and elsewhere. The progress in research which was reported by Professor Evans' stimulating address gives encouragement that the physicists' study of elementary particles has results as beneficial as the military uses have been devastating.

Fiscal 1947

In presenting the financial report on M.I.T. activities for the fiscal year 1947, Horace S. Ford, Treasurer, was able to report that a \$17,000,000 volume was conducted with a deficit of only \$4,784 instead of almost \$300,000 which had been anticipated earlier in the year. The favorable showing is attributed largely to increased income from investments and to more favorable revenues from research than had been anticipated, although some of the additional income also came from increased tuition rates and the year's unprecedented enrollment.

With the great increase in the student body, the usual academic operations expanded greatly, reaching the figure of \$6,500,000 for the year reported, as contrasted with \$4,000,000 in 1946.

Endowment and other funds showed an increase of \$1,000,000 during the past year and have a book value of \$47,500,000. Gifts for endowment during the year totaled \$328,374 with gifts for building funds amounting to \$1,110,334. Student loan funds and other gifts brought the total up to \$2,383,682.

The flow chart, below, shows the sources of all income and expenses for the year which ended June 30, 1947. Income from students, including loan and scholarship awards amounted to \$3,431,000 which represents an increase of \$1,526,000 over the previous year. Two thirds of the income from students came through the Veterans Administration Office. Income from investments reflected increased stock dividends received and represents an increase of \$126,000 over 1946. Revenues from research contracts were \$9,825,000 compared to \$24,200,000 for the year 1946.

Academic and educational expenses increased about

CURRENT OPERATIONS - \$17,000,000

1946-1947

INCOME

8% CIVILIAN STUDENTS - TUITION
12% VETERAN'S ADMINISTRATION - TUITION
6% INVESTMENT INCOME
12% GIFTS & OTHER FUNDS & RECEIPTS
6% RESEARCH CONTRACTS REIMBURSEMENT FOR ADMIN. & PLANT EXPENSE
49% RESEARCH CONTRACTS REIMBURSEMENT FOR DIRECT EXPENSES

FLOW CHART

EXPENSE

27% ACADEMIC

7% GENERAL & SPECIAL ADMINISTRATION

8% PLANT OPERATION

2% MEDICAL & OTHER

49% RESEARCH CONTRACTS DIRECT EXPENSES

7% DORMITORIES, DINING SERVICES ETC.

7%

\$1,500,000 during the year. General and special administrative expenses were \$242,000 over the corresponding figure for the previous year, and plant operation and maintenance totaled \$828,000 or \$202,000 more than the year before.

It is interesting to note from the flow chart that 20 per cent of the Institute's income was derived from tuition, whereas 27 per cent of its expenses were for academic salaries. Plant operation, medical service, and general and special administrative expenses account for another 17 per cent of Institute expenses — all of which are needed to serve students properly. Hence, on a percentage basis, the income from student tuition accounts for less than half of the expenses needed to maintain the educational requirements at M.I.T.

Midwinter Boston Meeting

ALUMNI of Metropolitan Boston will hold their Mid-winter Alumni Meeting at Walker Memorial on the evening of Saturday, February 7, 1948. Cafeteria style dinner will be served between 6:00 and 7:30 P.M. and the program of events will begin at 8:15.

An interesting lecture and demonstration will be given by George W. Gilman, '23, Director of Transmission Engineering for the Bell Telephone Laboratories. The program has been planned to acquaint Boston Alumni with some of the newer techniques and recent progress in telephone communications, including the microwave relay between Boston and New York which has been completed only recently.

Robert C. Casselman, '39, chairman of the Committee on Assemblies, promises a program as interesting as last year's when about 1,000 Alumni came back to Tech for a demonstration on television.

Athletic Board Replaces Advisory Council

REPLACING the Alumni Advisory Council on Athletics, which for half a century has functioned as the supervising agency of M.I.T. athletics, is the newly created Athletic Board. Formed at the suggestion of members of the Advisory Council on Athletics, the new Board will broaden the range of interests and responsibilities in the guidance of M.I.T. athletic activities. The Board will be composed of two members nominated by the Alumni Council, two members to be appointed by the President of M.I.T. from the Institute Faculty or staff, three members to be nominated by the Athletic Association, and, *ex officiis*, the dean of students, the director of the Medical Department, and the director of athletics. The increased enrollment at the Institute, coupled with the general objective of providing expanded facilities for developing students into well-rounded individuals, has made such a move particularly desirable at the present time.

At the meeting of the Alumni Council on November 24, Dr. John A. Rockwell, '96, chairman of the Advisory Council on Athletics, read the following letter which was signed by William W. Garth, Jr., '36, Lewis T. Jester, Jr., '41, Henry E. Worcester, '97, Ralph T. Jope, '28, Secretary, and Dr. Rockwell, chairman:

The first meeting of an Advisory Council on Athletics was held on January 18, 1898. The Advisory Council in its present form has been functioning as the supervising agency of M.I.T. Athletics since the Hunter Report about thirty years ago.

As the years have passed and the enrollment at M.I.T. has

grown, the responsibilities placed upon the Council have also increased. Therefore, last year members of this Council recommended to the Administration that a full-time Director of Athletics be appointed. Since this suggestion has been accepted and the M.I.T. Administration has assumed the full responsibility for supervising M.I.T. Athletics, the need for an Alumni Advisory Council on Athletics in its present form no longer exists. Consequently, members of this Advisory Council request that they be discharged and this Advisory Council on Athletics be discontinued as a standing committee of the Alumni Council.

Following Dr. Rockwell, two other long-time members of the Advisory Council on Athletics — Henry E. Worcester and Ralph T. Jope — spoke of the work the Council had done over a period of years for the benefit of student athletics at M.I.T. Both stressed the pleasure they had enjoyed in being able to participate in this important work throughout their many years of association with student athletics.

It was then voted "that the Advisory Council on Athletics be discharged with full recognition and tribute for the fine services rendered, and that William W. Garth, Jr., and Lewis T. Jester, Jr. be nominated by the Alumni Council as the two alumni members for the first annual appointment by Dr. Compton."

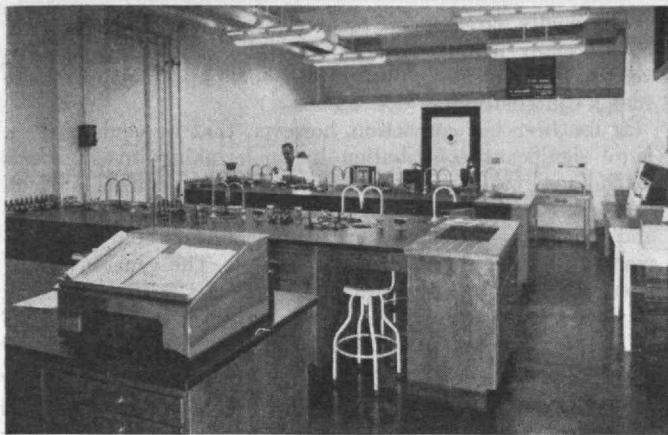
In speaking of the postwar conditions which made it desirable to alter past methods of conducting athletic activities at M.I.T., President Compton told the Alumni Council:

The necessity for the adoption of this new plan points to the great responsibilities which the Alumni Advisory Council has borne over a long period of years. This Advisory Council has been responsible for formulating and maintaining the high standards which characterize our athletic activities at the Institute, and it has, despite inadequate funds, steadily improved and enlarged the scope of athletics at the Institute. The present enlarged program, with its emphasis on intramural athletics, is a tribute to the Advisory Council's effective planning and administration. I would pay particular tribute to Dr. Rockwell, who has been chairman of the Advisory Council for 33 years and a member for 49; to Mr. Worcester, who has been a member for 33 years; and to Mr. Jope, who has been secretary since 1934.

Physics in the Contemporary World

APPROXIMATELY 1,000 persons gathered in Walker Memorial on the evening of November 25 to listen to Dr. J. Robert Oppenheimer, Director of the Institute for Advanced Study at Princeton, N. J., deliver the second Arthur Dehon Little Memorial Lecture. This scholarly address, dealing with current problems in the proper utilization of science was entitled "Physics in the Contemporary World."

Speaking with conscientious concern about the applications to which scientific knowledge is put, Dr. Oppenheimer stated that "a scientist cannot hold back progress because of fears of what the world will do with his discoveries." In discussing contemporary science in relation to the daily lives of the world's citizens, he indicated that of all intellectual activity, science alone has flourished in the last century and has turned out the kind of universality among men which the times require, for science ceases to exist as such when it is cloaked in the garb of nationalism. In those areas of the world in which science has not merely been disturbed or arrested by war and terror, but



Two of the laboratory rooms in the Institute's new group of the William Thompson Sedgwick Laboratories of Sanitary Engineering. At the left is shown the Laboratory of Sanitary Bacteriology and Research of which Professor Murray P. Horwood, '16, has charge. Clair N. Sawyer, Associate Professor of Sanitary Chemistry, is in charge of the Laboratory of Sanitary Chemistry and Research at the right.

where terror and its official philosophy have, in a sense, corrupted its very foundations, Dr. Oppenheimer reminded his audience, even the traditional fraternity of scientists has not proved adequate protection against decay. When it becomes absolute, or tends so to become, tyranny finds it impossible to live with science. But it is not the purpose to summarize this lecture in these columns; rather, The Review hopes to have the privilege of bringing to its readers the entire stimulating address which made up the second of these memorial lectures.

The Arthur Dehon Little Memorial Lectures, established in memory of the late Arthur D. Little, '85, were inaugurated last year by Sir Edward V. Appleton, who has recently been awarded the Nobel prize in physics for his early work in the investigation of the properties of the ionosphere.

Sedgwick Laboratories Dedicated

THE William Thompson Sedgwick Laboratories of Sanitary Science were dedicated in the Department of Civil and Sanitary Engineering at the Institute on Wednesday, December 3, during exercises which emphasized the role of engineers in maintaining public health. The new laboratories of sanitary engineering, sanitary chemistry and research, and sanitary bacteriology and research are designed to meet modern educational procedures in teaching sanitary engineering and to provide a thorough knowledge of the chemical and biochemical reactions which take place in the treatment of water, sewage, and industrial wastes.

Dr. John B. Wilbur, '26, Head of the Department of Civil and Sanitary Engineering, presided at the dedication exercises, and Dr. Samuel C. Prescott, '94, formerly Dean of Science, and Professor Emeritus of Industrial Biology at the Institute, described the work of Professor Sedgwick, whose many important contributions to sanitary science and public health are memorialized in the new laboratories named for him.

Laboratory training and sanitary engineering practice in maintaining health was discussed by Arthur D. Weston, chief engineer of the Massachusetts Department of Public Health. Dr. Gordon M. Fair, '16, Dean of Engineering of the Harvard Graduate School of Engineering, spoke on sanitary engineering education, giving particular emphasis to the value of experimental methods and laboratory techniques.

Professor William E. Stanley, who has charge of the new laboratories, described the facilities of each of the new laboratories. Murray P. Horwood, '16, Professor of Sanitary Science, is in charge of the Laboratory of Sanitary Bacteriology and Research; Clair N. Sawyer, Associate Professor of Sanitary Chemistry, is in charge of the Laboratory of Sanitary Chemistry and Research; and Ariel A. Thomas, '36, Assistant Professor of Sanitary Engineering, is in charge of the Laboratory of Sanitary Engineering.

Experimental Science Lectures

AS has been customary, with the exception of certain war years, ever since the Massachusetts Institute of Technology operated under its charter from the Commonwealth of Massachusetts, a series of free popular lectures will be given this season at Huntington Hall in the main buildings of Technology.

The four lectures in this season's program are aimed to interpret science for the nonspecialist, and emphasis will be placed on the demonstration aspects of those branches of science to be discussed. The Society of Arts lectures, to be held at 4:00 P.M. on Sundays, will be given by prominent Faculty members as follows:

"New Developments in Food Technology, One Answer to Food Shortages" by William L. Campbell, '15, Professor of Food Technology. Sunday, December 21

"Nuclear Power" by Clark Goodman, '40, Associate Professor of Physics. Sunday, January 18, 1948

"Sound and Silence" by Richard H. Bolt, Associate Professor of Physics. Sunday, February 15, 1948

"Internal Combustion Engines" by Edward S. Taylor, '24, Professor of Aircraft Engines. Sunday, March 14.

Although these well-known Society of Arts lectures are free, admission is by ticket only. They may be obtained one week before each lecture by sending a stamped addressed envelope to the Society of Arts, Room 4-415, M.I.T., Cambridge 39, Mass.

James F. Norris Memorial Shelf

THE memory of James F. Norris, for many years Professor of Chemistry at M.I.T., was honored at luncheon ceremonies during the fall meeting of the American Chemical Society in New York, when a group of alumni of the Johns Hopkins University dedicated the establishment of the James F. Norris Shelf in the Johns

Hopkins University Library. In thus honoring one of their own distinguished classmates, Johns Hopkins alumni paid tribute to a man who made many friends at the Institute where he was professor of general chemistry from 1916 to 1920, and professor of organic chemistry from 1920 until his death in 1940, and who was president of the American Chemical Society in 1925 and 1926.

Each book on the Norris Shelf will have a book plate which will bear the statement, "Presented by the Chemistry Alumni, in memory of Dr. James Flack Norris, A.B. 1892, Ph.D. 1895, Past President A.C.S. 1925 and 1926." Mrs. Norris, who was present at the dedication ceremonies will add to the shelf on January 20 each year, the anniversary of the birth of Dr. Norris. Through these and other contributions, it is expected that the Norris Shelf will be kept up to date.

Dr. E. Emmet Reid, Professor Emeritus of Johns Hopkins University, prepared a suitable biographical sketch of Professor Norris' active and fruitful life which read in part as follows:

"Dr. James Flack Norris was born in Baltimore, January 20, 1871, the son of Rev. Richard Norris. His life is a tale of two cities, Baltimore and Boston. He was brought up in Baltimore and received undergraduate and graduate training at the Johns Hopkins University, A.B. 1892 and Ph.D. 1895. The remaining forty-five years of his life were spent in Boston except for brief interruptions. In the fall of 1895 he went to the Massachusetts Institute of Technology as an assistant but was soon an instructor and later an assistant professor. From 1904 to 1915 he was professor of chemistry at Simmons College, just across town from M.I.T. For one year he got away from baked beans and was professor of chemistry at Vanderbilt University. He returned to M.I.T. in 1916 as professor, later director of research. He lectured at Harvard and Clark Universities. From 1916 until his death August 3, 1940, M.I.T. was the center of his activities."

Scientific Aids to Learning

METHODS of collecting, organizing, and communicating knowledge will be studied in a center for scientific aids to learning now being established at M.I.T. under a grant of \$100,000 from the Carnegie Corporation of New York. In making this announcement last month, President Compton stated that the new center is conceived as a national and international resource in its field. It will concern itself with research and experimentation on aspects of printing, documentary reproduction, visual education, sound recording, and mechanical selection systems. It will also serve as a center for training technicians, librarians, and others in allied fields in the theories and practices of scientific aids to learning. Perhaps one of its most important services will be to serve as a center of information for those who desire to learn what facilities are available in the communication of knowledge.

In a joint statement outlining the objectives of the center, John E. Burchard, '23, Director of Libraries, and Vernon D. Tate, Librarian of the Institute said:

We have recognized for a long time that we should make, through the library of the Massachusetts Institute of Technology, a contribution to world scholarship which would be comparable to those we have been making through our classrooms and laboratories. The library has for many years been

exceptionally large for a technological institution and now houses many important collections whose expansion and development would provide the traditional opportunity to make such a contribution.

It has been our conviction, however, that we could make a more significant contribution by undertaking investigations extending beyond the frontiers of the library into areas in which the broad scientific and engineering facilities of the Institute and the counsel of outstanding members of its staff would be marshaled for the benefit of scholarship. The generous grant from the Carnegie Corporation now makes it possible to begin this important work.

The rapid increase in knowledge in all fields of human endeavor requires new concepts of the organization and use of information. Books can no longer be regarded as the only primary medium for the storage of knowledge, and indeed in terms of space they are no longer the most efficient. There are very good reasons, in fact, for believing that, except for the great collections of literature, books will be supplanted eventually by more efficient and convenient mediums for accumulating and disseminating knowledge. This is a problem of great concern to scholars and educators.

A wide variety of techniques, some in existence, others in early stages of development, offer promising possibilities for research in this very important field. The motion picture, well established as a medium of entertainment, can be profitably explored as a means of visual education. Microphotography is technically well advanced, but its applications lag. Television of the printed word is technically simple, but to apply it to library resources poses complex economic and intellectual problems. Rapid selection systems are already well developed for business records and are promising for bibliographical purposes, but the problem of using them to advantage in scholarship has barely been sketched.

Five fields offer particularly attractive possibilities for a program of research in the Institute's new center for scientific aids to learning. These include printing, one of the most important, which embraces all the variations of processes ranging from letter press through offset lithography and the many less pretentious forms of duplication; another is documentary reproduction which includes all methods of reproducing materials by photography, microphotography, microcard, miniature facsimile, and related techniques. Visual education is concerned with the uses of visual techniques in instruction, utilizing lantern slides, motion pictures, and other methods for textual and non-textual materials. The field of sound recording must be concerned with the full exploitation of the sense of hearing, while methods of mechanical selection, dealing with theories of coding and mechanical methods for assembling, arranging, and supplying data of all types through punched cards or other media, is still another important field for research.

Basic laboratory research alone will not provide answers for many of the problems that will inevitably arise in such a comprehensive program. The results must be tested in teaching, in the Institute's library, and through the co-operation of the great libraries of neighboring institutions, such as that of Harvard University and the Boston Public Library, which is assured through existing close relationships.

The work of the center for scientific aids to learning will be closely associated with the Institute's expanding library program. The physical plant will consist of a simple office and laboratories. Existing facilities will be utilized wherever possible and in addition to darkrooms, work areas, utilization and storage spaces for microfilm, lantern slides, motion picture films, and sound recordings will be installed in the new library. Provision for a small machine shop to be used for experimental work, maintenance and repairs, together with a special exhibit of past and current equipment, and an inclusive library largely assembled from periodical literature will be made. In its larger concept when the plant is in full operation the entire library will become the laboratory.

(Continued on page 166)

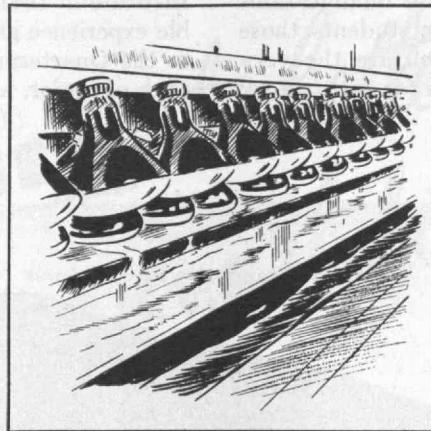
BUSINESS IN MOTION

To our Colleagues in American Business . . .

Several years ago it became evident that the architectural profession and the building industry were being plagued and puzzled by failures in copper sheet used in gutters, flashings, and roofs, particularly on larger buildings. Since the copper had been specified and installed in accordance with then-current practice, there was a natural tendency to blame the metal. The fact that centuries-old copper in European roofs had given no trouble, and that many old copper roofing installations in this country were still good, suggested that some new factor had entered the picture.

Revere decided to discover what this factor was. First, experienced construction men were sent on a tour of inspection of both old and recent roofs, to examine gauges, tempers, sheet lengths, methods of making joints, and provisions for expansion and contraction. It quickly became apparent that failures had their source in movement of the metal due to changes in temperatures. Buckles concentrated their stresses at angular bends, and as the copper was repeatedly flexed at these points, it eventually cracked.

Comparisons with successful roofs led to conclusions that seemed reliable, but it was felt desirable to check these by experimental work that would permit the making of those measurements and confirmatory tests that are essential to accurate analysis and dependable recommendations. Full-scale replicas of actual constructions were built in the Revere Laboratory, and subjected to conditions approximating those of actual service. By means of infra-red lamps the metal was heated, and then chilled by a "rain" of cold water. Thus in ten minutes the effects of a year of exposure could be simulated. These tests were spectacular. Movement and failure could be seen easily, and recorded in motion pictures.



The observations made in these and other laboratory tests provided the background for quantitative stress analyses and made it apparent that copper roofs and copper gutters must be considered from the structural point of view rather than regarded as mere weatherproofing veneers. The columnar strength of formed sheet metal sections was demonstrated to be of particular significance in these applications. Such strength is needed for two principal purposes: to permit the inevitable movement to be fully transmitted to and taken up by expansion joints, and to overcome friction with the underlying materials. As the work proceeded, new specifications and working designs were developed, including such matters as gauges and tempers of copper for various installations, the protection of the underside of the metal from tar or other substances restricting its movement, the spacing and construction of expansion joints, seams, flashings and valleys, and how to make successful repairs when needed in present roofs. All these were proved by Laboratory experiments. The information is contained in a 96-page booklet, highly praised by architects, builders, and sheet metal contractors

as the solution to the problem.

These extensive studies were undertaken by Revere not only to protect its own business in sheet copper for roofing, but out of a sense of obligation to its customers, to architects and builders, and indeed to the entire sheet copper industry. There is nothing unusual about such an attitude. You will find it everywhere. Therefore Revere suggests that no matter what you buy, nor from whom, you consult with your suppliers if you encounter any difficulties in the fabrication, use, or serviceability of their materials. In most cases you will be able to obtain immediate assistance, and if not, you should find an eager willingness to cooperate.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801



Executive Offices:

230 Park Avenue, New York 17, N. Y.

THE INSTITUTE GAZETTE

(Continued from page 164)

In documentary reproduction, the staff, Faculty, and library have already become accustomed to the use of the products of several techniques; large holdings of material on microfilm have been acquired and several reading machines are in use. The students' reader, initially distributed nearly a decade ago by the Carnegie Committee on Scientific Aids to Learning and now in use throughout the world, was designed and perfected at M.I.T.

Basic research in sound recording, applied acoustics, phonetics, and instruction through audio processes is already under way in the Institute's new Acoustics Laboratory, the Departments of Modern Languages, English and History, and others. Methods of mechanical selection are being studied in the Department of Electrical Engineering, and possible applications to the chemical literature are under way in the Department of Chemistry under sponsorship of the American Chemical Society.

Resources

BRADTH of viewpoint and interest is a primary objective of modern education in science and engineering. Obviously this objective can be attained only by instructors whose educational experience has extended beyond the narrow channels of professional scholarship. It follows then that teachers with these qualifications may be expected to encourage in their students those habits of thought and good taste which are the very substance of culture and the foundation for satisfactory living.

How fortunate the Institute is in having on its staff well-rounded men of exceptional breadth and ability was demonstrated recently when new members of the staff were introduced to their colleagues on the Faculty. One young assistant professor holds degrees from Williams College and Harvard University, as well as from M.I.T. He has practiced law and during World War II served in the Office of Scientific Research and Development. Another comes to the Institute with a background of training in social science at the College of the City of New York. He also holds a master of arts degree in economics from the University of Wisconsin, and the degree of master of public administration from Harvard University. In addition to his teaching at M.I.T., he is a candidate for the degree of doctor of philosophy at Harvard University. During the war he was administrative assistant in the National Housing Agency.

A new member of the staff in Mechanical Engineering was born in the Philippine Islands and educated at Stevens Institute of Technology where he was graduated first man in his class. After teaching experience at Stevens he joined the staff of the Radiation Laboratory at M.I.T., where at the same time he undertook graduate work in the Department of Mathematics and was awarded the degree of doctor of philosophy last year. Another new member of the same Department, a graduate of the Institute in 1941, brings to his new teaching post valuable experience gained through his activities as an officer in the Quartermaster Corps where he advanced to the rank of major, and served as director of textile research

(Continued on page 168)

Santa Fe Railway—Cajon Pass, California

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American Optical

Scientific Instrument Division
Buffalo 15, New York

Manufacturers of the SPENCER Scientific Instruments

THE INSTITUTE GAZETTE

(Continued from page 166)

and development. Returning to the Institute, he completed his work for the master of science degree in textile technology this year.

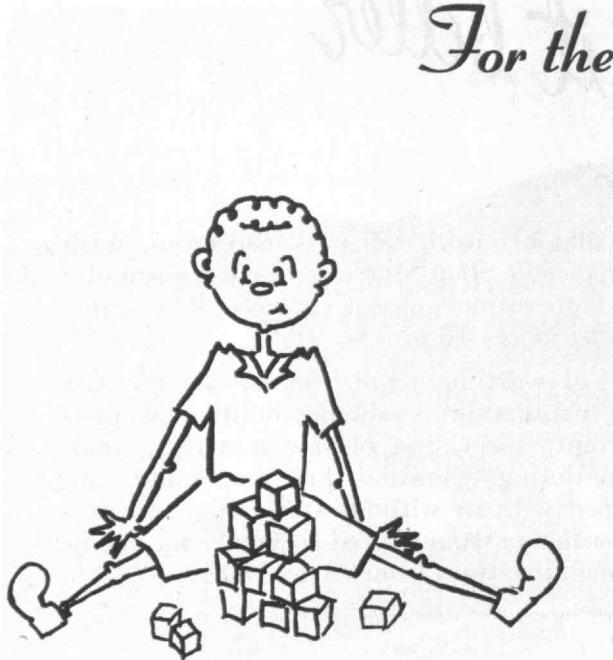
Three new members of the staff of the Department of English and History have a rich background of education and experience. One is a graduate of Amherst College and holds the degree of doctor of philosophy from Harvard University. During the war he served as an officer in the Navy where he became instructor in aviation gunnery, later joining the historical section in the office of the Chief of Naval Operations. He has completed a historical study of naval logistics which is being prepared for publication.

Another interesting member of the staff is a professional violinist who was conductor of the M.I.T. Symphony Orchestra last year. He joins the staff as assistant professor of music to take charge of the senior humanities option, Introduction to Music, and to supervise and develop the musical interests of the students. He studied at the Hamburg Conservatory of Music and the Academy of Music at Cologne, and at one time served as concert master of the Berlin Symphony Orchestra and Director of the Hamburg University concerts. After coming to this country he was for five years a member of the faculty of Yale University, School of Music, and during the last year of the war he was music adviser to the First Service Command of the Army.

The third new member of the Department is a graduate of the liberal arts college of Johns Hopkins University. After a brief experience in business, he returned to Johns Hopkins to take a degree in mechanical engineering. His experience includes a position with the General Motors Corporation where he was concerned with the editing of technical reports. Later he was a member of the technical information staff of the Ethyl Corporation Research Laboratories in Detroit, where he gained further experience in writing. He joined the Institute as an assistant professor of English to teach courses in report writing and to assist in the preparation of technical reports for one of the Institute's laboratories.

A new member of the staff in the Department of Aeronautical Engineering is a native of China, where he was born in 1909. He was graduated in 1930 from Chiao-Tung University, and from 1930 to 1936 he was an instructor in physics and chemistry at Tai-tsang and Hwai-an schools in Kiangsu. During this period he also served as a consulting engineer in the electrical field. He was awarded fellowships for study in the United States between 1936 and 1941, and received the degree of master of science in aeronautical engineering from M.I.T. in 1938, and his doctor's degree in the same field in 1941. During the following year he was a technical assistant in the aviation division of China Defense Supplies, Inc. in Washington. In the fall of 1942 he came to the Institute to work in the Instrumentation Laboratory on fire control and gunsight projects. He has contributed many important papers in his field.

(Continued on page 170)



YOUNG MEN

of Industry . . .

Nearly every graduating senior buys and cherishes a copy of TECHNIQUE — the M.I.T. yearbook. Can you think of a better way to bring your product to the attention of the young men of today who will make the executive decisions of tomorrow? We would appreciate your inquiries regarding advertising in . . .

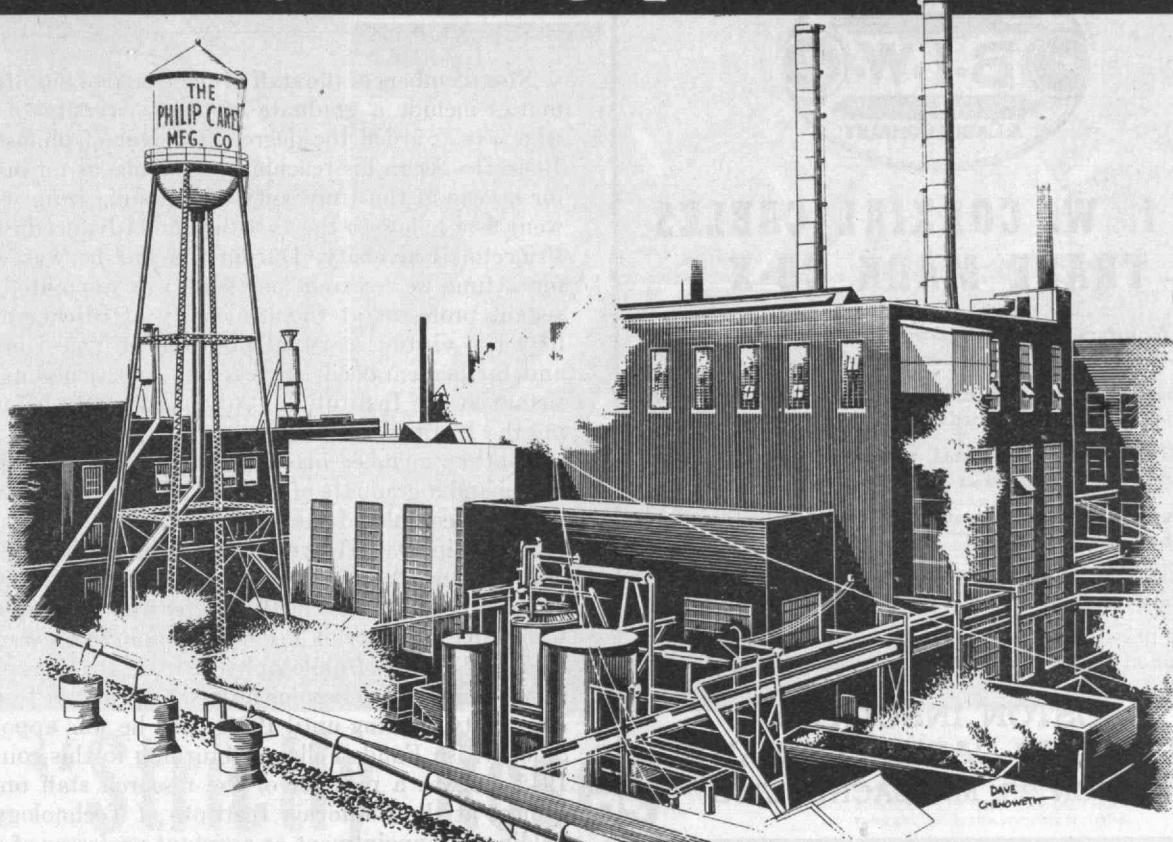
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M.I.T. CAMBRIDGE

History-making power stations



No. 5—Lockland, Ohio, Plant

THE PHILIP CAREY MANUFACTURING COMPANY

In May of 1931, at the time the Lockland power plant went into operation, an article in the magazine POWER stated:

"Over two years ago engineers were astounded by the announcement that the new power plant of the Philip Carey Company at Lockland, Ohio, would employ a steam pressure of 1840 pounds per square inch . . . Not only is this the highest pressure yet employed commercially in this country, but the plant is the largest in any country to employ such a pressure."

The Philip Carey Company didn't decide to take this pioneering step in order to set a record. Their particular requirements of steam for both power generation and process made it the economical

thing to do. Nevertheless, it took courage to make a large capital investment in equipment to operate under conditions that were then beyond the limits of commercial practice. We are proud of the fact that Combustion Engineering was selected to design and build the two steam generating units for the Lockland plant — the largest roofing plant in the country and producer of a wide variety of insulating, waterproofing and other building materials.

The association of C-E equipment with Lockland and many other power stations that have made history in the field of steam generation speaks for itself. The experience, special skills and advanced engineering which have brought about this association are available to you, whether your steam requirements be large or small.

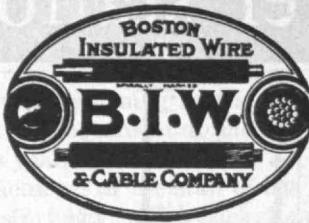
These three factors are the unwritten plus-values in every C-E contract —

Knowledge — to solve today's, and tomorrow's, steam generating problems.

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- Heavy duty, high power, flexible or semi-rigid transmission line.

All of the above can be supplied with special fittings and junctions for connections to panels or rigid lines.

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BOSTON 25, MASSACHUSETTS**



(With Apologies to Shakespeare)

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Cambridge 41,
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VENTALARM
GAS TANK  FILL SIGNAL

THE INSTITUTE GAZETTE

(Continued from page 168)

New members of the staff of the Department of Mathematics include a graduate of the University of Illinois who was awarded the degree of doctor of philosophy in 1939. He began his teaching experience as an instructor for a year in the University of Alabama from which he went as a fellow to the Institute for Advanced Study at Princeton University. During the war he was engaged for a time in research and later was appointed an assistant professor at the University of Michigan. Later he was a visiting assistant professor at Yale University, and further enriched his teaching experience as an assistant at the Institute for Advanced Study before joining the Institute's Faculty.

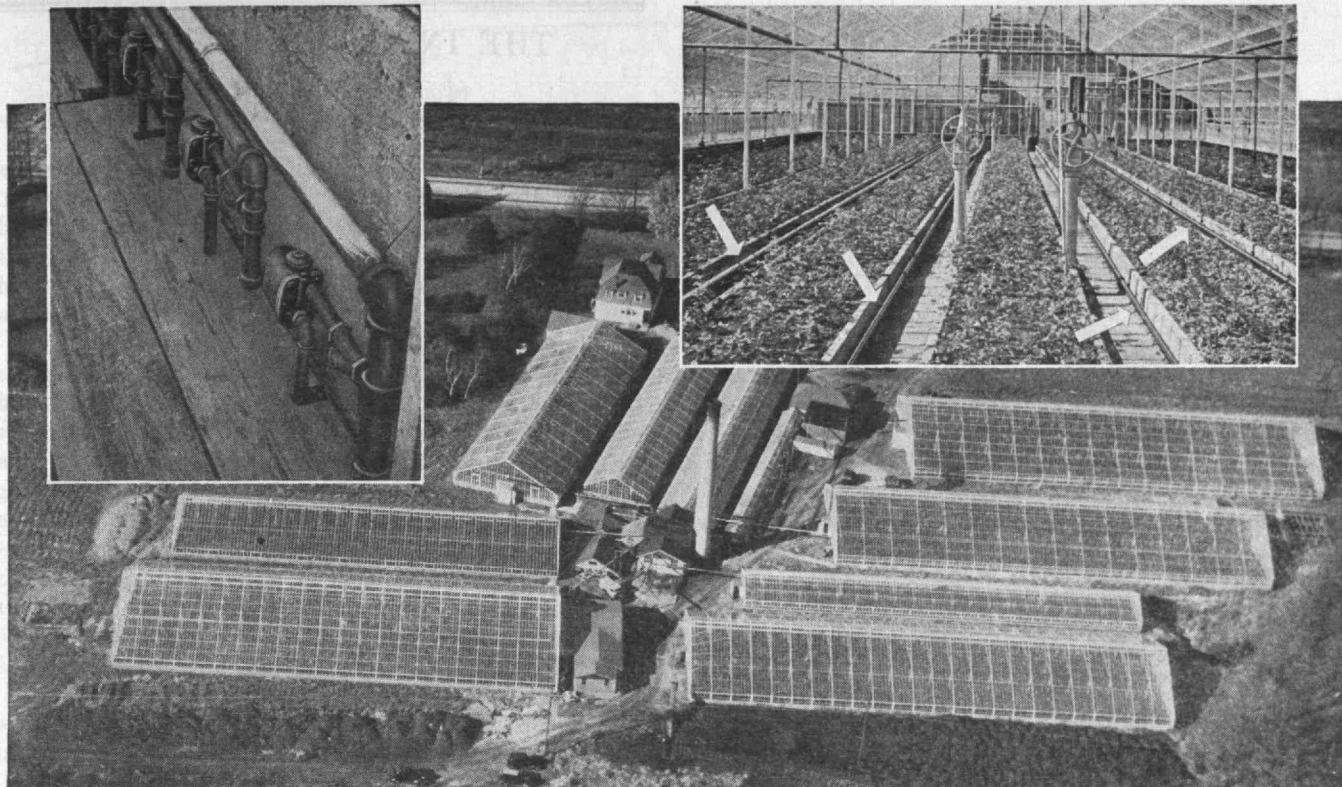
Another member of the Department is a native of China and a graduate of National Tsing Hua University, where he completed the work for the degree of bachelor of science in 1937. He went to Canada for advanced work and was awarded the degree of master of arts from the University of Toronto in 1941, after which he entered the California Institute of Technology and was awarded the degree of doctor of philosophy in 1944. He then returned to his homeland to become an assistant at the Tsing Hua University, serving until 1939 when he was appointed a Sino-British Funds Fellow. Returning to this country in 1943, he was a member of the research staff on a war project at the California Institute of Technology, later holding an appointment as assistant professor of applied mathematics at Brown University.

A new member of the staff of the Department of Meteorology is a graduate of New York State Teachers College who holds the degree of master of science from M.I.T. and his doctorate in meteorology from the University of Chicago. He brings to the Institute a background of experience which includes work in the United States Weather Bureau and the University of Chicago, where he was an assistant professor from 1943 to 1947. He has also served as editor of the *Journal of Meteorology*.

The Department of Civil and Sanitary Engineering has two new members of the Faculty whose background of experience and education enrich the resources of that Department. One was graduated in Civil Engineering from the Institute, carried on graduate work in sanitary engineering at the University of Illinois and later was associated for five years with the Sanitary Engineering Division of the State of Illinois. He then joined the Sanitary Corps of the United States Army as an officer and is now in charge of the engineering division of the new Sedgwick Laboratories of Sanitary Science. Another member of the Department who did his undergraduate and graduate work at M.I.T., returns after broad experience in industry.

The Department of Physics has a new member of the staff, who was educated at the College of the City of New York, holds the degree of doctor of philosophy from Columbia University, and was an instructor in both institutions. From 1942 to 1944 he was a staff physicist in the metallurgical laboratory of the University of Chicago. Later he served on the staff of the University of California on the Los Alamos atomic bomb project.

(Continued on page 172)



"Strictly Roses"

Chevalley Greenhouses at Bayport, Long Island, grow nothing but roses. At any given moment this successful business has a substantial investment which could be greatly impaired by sudden temperature changes.

Chevalley fully appreciates the importance of reliable, flexible and fool-proof heating. They provide this heating through steam with a separate steam line along each side of each trough, as shown above at right.

Before selecting Webster Steam Heating Equipment, Chevalley made a thorough study of the various types of traps available, visiting and examining many greenhouse installations. By ordinary engineering standards figuring the amount

of surface in each coil, only a small thermostatic trap would be required. Chevalley determined that the preferred solution is a separate Webster Series 26 Float and Thermostatic Drip Trap on the discharge of each long pipe coil.

When the sun is on the glass there is no heat in this piping. But let there be a clouding over of the sun and a drop in temperature and Chevalley requires instant heat the full length of the pipe coils.

Regardless of how suddenly steam is turned on to any pipe coil, a Webster Series 26 Trap provides immediate full drainage of condensation, big overload capacity when cold, and elimination of any possibility of damage through water hammer. Satisfactory operation is assured regardless of whether the

Chevalley Greenhouses at Bayport, Long Island, as seen from the air. Insert at left shows how a separate Webster Heavy Duty Trap, protected by a Webster Strainer, serves to drain each separate long pipe line. Insert at right shows the pipe lines thus drained alongside the growing troughs.

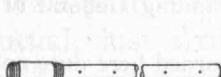
control of steam supply is manual or automatic.

Webster worked with Chevalley Greenhouses in solving this problem and appreciates their courtesy in permitting us to tell the story in our advertising. Webster men have helped to solve greenhouse heating problems for more than thirty years. If you have a greenhouse heating problem write us about it. We will pass it on to the Webster Representative nearest you. He will be glad to work on it with you.

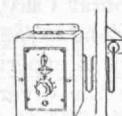
WARREN WEBSTER & CO., Camden, N.J.
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HEATING SYSTEMS

Some Items of Webster Equipment For Greenhouse Heating



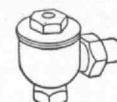
Webster Manifold Coil Ori- fice Fitting balances steam distribution in pipe coil installations, resulting in partial heating throughout entire length.



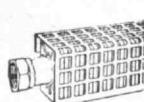
Webster EH-10 Moderator Control Cabinet and Outdoor Thermostat provides automatic heat variation.



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Rogers Peet Clothes give a quiet, well-bred assurance. They are an unmistakable asset—for the man at the top, as well as for the younger man on his way up.

Styles for young men, and men who never grow old.

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Thirteenth St. at Broadway Warren Street at Broadway

And in Boston:
Tremont St.
at Bromfield St.

THE INSTITUTE GAZETTE

(Continued from page 170)

The Department of Metallurgy has three new members of the staff with wide experience in teaching and research. One is a graduate of Rensselaer Polytechnic Institute and holds the degree of doctor of science from M.I.T. He is a former chief metallurgist in the magnesium foundry of the United States Radiator Corporation and was later a metallurgist in the General Electric Company.

Another who holds undergraduate and graduate degrees from the Institute served as secretary, interpreter, and editor of *Transactions of the Singer-Polignac Astrophysics Colloquium* in Paris in 1939. From 1940 to 1942 he was assistant in charge of research in the Diamond Drilling Department of the New Consolidated Gold Fields in Johannesburg, South Africa. He also served as a consulting engineer on problems of abrasives in South Africa and later formed a company for making tungsten powder from African ores and manufacturing tungsten carbide for use in mining. He served during the war as consultant to South African industry on powder metallurgy.

The third new member of the staff is a graduate of the University of Toronto where he served as instructor in ore dressing from 1937 to 1941 when he joined the Department of Mines and Resources of Canada until 1947 when he came to the Institute.

The educational background and experience of four new members of the staff of the Department of Business and Engineering Administration still further emphasize the breadth of the Institute's staff. A new assistant professor of accounting is a graduate of the University of Oregon and the Harvard Business School, who also served with the government during the war. He has had experience as a practicing certified public accountant and has taught accounting in the University of Oregon. A new assistant professor of business management, a graduate of Williams College, who holds a master's degree from the Institute, had wide experience in military service before returning to accept a post in the Department.

The third member of the staff, an assistant professor of marketing, is a graduate of Pennsylvania State College where he also instructed in economics. He became an assistant in economics and business organization in Ohio State University, and subsequently returned to Pennsylvania State College as an assistant professor of marketing and economics. During the war he had experience on the War Production Board and later served in the Navy.

A visiting professor in the Department is a distinguished representative of industry who was graduated from Stanford University and came to the Institute on leave of absence from the Standard Oil Company of California, to which he is organization counsel. During the war he was Director of Organization of the Petroleum Administration for War, later becoming organizational adviser to General Clay, Commanding General of the United States Zone in Germany.

The summary of experience recorded here does not, of course, include the diverse professional careers of seasoned Faculty members. Nevertheless, it does indicate the varied backgrounds which may be—and are—drawn upon in the training of M.I.T. scientists and engineers.

(Concluded on page 174)



I wish every college man
could read this letter.
HCC

You ask how I made the college-to-career jump--well, here's my story.

Early in 1943, Hitler & Company put an end to my architectural studies at Northwestern and I was soon off to the North Atlantic for long months of patrol. Next came shore duty in and around New England. While there I married a girl who, when I went back to sea, worked in the big, white home office building of the New England Mutual Life Insurance Company across the street from Coast Guard headquarters in Boston.

During my service years I had decided that I didn't want to be an architect after all, so when I became a civilian again, we moved to Grand Rapids, where my wife used to live. I got a job in radio. Then I tried retail merchandising, but I wasn't satisfied with either.

One day a New England Mutual agent called on me. During our talks I became a policyholder, but more than that, I saw in this agent's career the very things I most wanted: independence, no ceiling on earning possibilities, a chance to use some initiative, and no waiting around for somebody to retire before getting a promotion. So I took the company's aptitude test, and soon I was a New England Mutual agent.

I've been back to that big home office building in Boston for a training course--and now, after my first six months on my own, I am more certain each day that my choice of a lifetime career was right for me. I get a lot of satisfaction, too, out of knowing that I am responsible for the improved financial well-being of certain people who now own over a hundred thousand dollars of life insurance that they did not own when I entered the business.

Sincerely,

Gordon C. Lindemann

If you'd like more facts and figures about a well-paid career with New England Mutual, just write to Mr. H. C. Chaney,

Director of Agencies, New England Mutual Life Insurance Company, 501 Boylston Street, Boston 17, Massachusetts.

Here are some of the M. I. T. men now with New England Mutual:

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Blaylock Atherton, '24, Nashua

Arthur C. Kenison, '19, Boston
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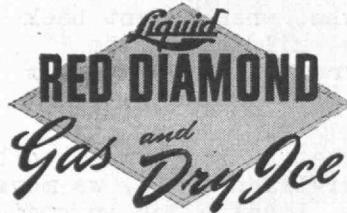
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Hevi Duty Precision Electric Heat
Treating Furnaces are built in a large
variety of types and sizes — for many
heat treating operations — with tem-
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HEAT TREATING FURNACES HEVI DUTY ELECTRIC EXCLUSIVELY
MILWAUKEE 1, WISCONSIN

THE INSTITUTE GAZETTE

(Concluded from page 172)

Hartley Medal to Dr. Compton

THE Marcellus Hartley Medal for "eminence in the application of science to public welfare" was awarded to President Karl T. Compton by the National Academy of Sciences on November 18.

In making the award, the Academy citation stated that President Compton had been chosen 1947 recipient "because of his notable contributions of an original character to the science of physics, his long and valuable career in the field of education and university administration, and in recognition of his eminent service in the wartime research effort of the nation, and in the reinforcing of collaboration and understanding between civilian scientists and military men."

During World War II, Dr. Compton served as director of Field Service in the Office of Scientific Research and Development.

THE TREND OF AFFAIRS

(Continued from page 148)

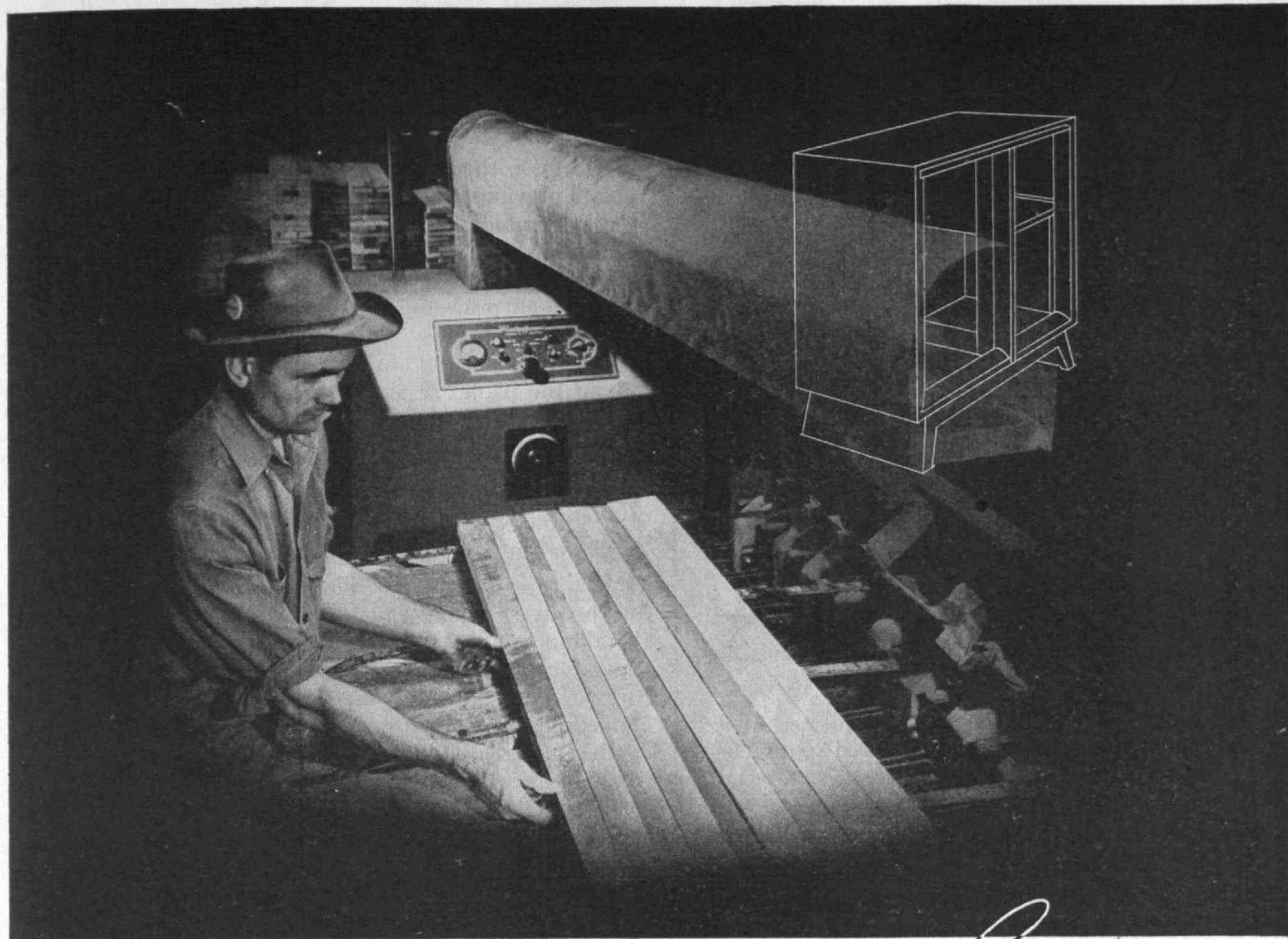
their own common labor as well as their own skilled and semiskilled mechanical work. The week-end athlete has long been an American institution; the week-end laborer is becoming equally common. Therefore, if one of these suburbanites developed amnesia, and his bodily stigmata were studied to aid in his identification, he might present the baffling combination of marks characteristic of the sedentary desk worker and pencil user, the painter, the carpenter, the landscape gardener, the bricklayer, and the sweeper.

Aerial Perspective

FIRST American-made automatic focusing photogrammetric instrument for rectifying prints in the making of photographic mosaic maps was delivered early in December to the United States Army, Corps of Engineers. The new instrument will be of paramount significance not only in aerial reconnaissance work but also in making studies of flood control and soil erosion.

The instrument resembles an ordinary photographic enlarger in general appearance but carries out automatically many more functions. It simultaneously enlarges and prints, as do photographic enlargers. In addition, it automatically reduces aerial photographs to a common scale so that all prints may be easily fitted together in building up the mosaic. Because planes equipped with the most modern stabilizers can maintain their level constant to within only one quarter of a degree, means for rectifying the prints, that is, of eliminating the keystone effect encountered in photographing the surface of the earth when the camera lens is not exactly perpendicular to the earth's surface, becomes necessary in the production of the individual prints used to make precise aerial photographic maps. Tilt of as much as 20 degrees can be rectified in the new machine, and this is accomplished auto-

(Concluded on page 176)



THE GLUE THAT BINDS NOW DRIES IN

Seconds!

Remember back when gluing wood was a sticky job and hours were required for the glue to "set"?

Modern electrical production methods have changed that job, too. The "heatless heat" of high-frequency radio waves now dries the glue and bonds the wood in seconds. "Edge-gluing" on a conveyor line basis turns waste wood pieces into valuable furniture.

As shown here, for example, boards 48" long by 38" wide by 1" thick can be made up of 15 or 20 scappieces—and glued in 30 seconds, ready for conversion into fine cabinets. Time and space for storage in

clamps is done away with—variations in clamping pressure and drying conditions are eliminated—up to 50 per cent savings in glue are effected—and three semi-skilled men can produce what six produced before.

Westinghouse Radio-Frequency Heating offers savings in other fields, too. Plywood now can be made to almost unlimited thicknesses, timber arches are easily fabricated, and cabinet or other wood-joining problems are handled with ease.

A complete line of Westinghouse Radio-Frequency Equipment for both dielectric and induction heating is now available. For more in-

formation about how and where radio-frequency heating can be applied in your plant, write on your letterhead to Westinghouse Electric Corp., Dept. T, P. O. Box 868, Pittsburgh 30, Penna.

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INVESTIGATE!

Radio-Frequency Heating is just one of many new or improved electrical techniques for producing faster, cheaper, better. Westinghouse engineers can quickly give you salient facts on others applicable to your industry, including the following:

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Samson Cordage Works

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Manufacturers of braided cords of all kinds, including sash cord, clothes line, trolley cord, signal cord, shade cord, Venetian blind cord, awning line, etc., also polished cotton twines and specialties.

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Our extra quality sash cord, distinguished at a glance by our trade-mark, the colored spots. Especially well known as the most durable material for hanging windows, for which use it has been specified by architects for more than half a century.



WHERE SPECIALTY IS STANDARD

...In the design of all TIREX portable cords there is but one standard jacket—a special Selenium-Neoprene compound that's cured in lead.

No other cord jacket provides more lasting protection against acids, oil, sunlight, flame and abrasion.

In the service of electrically-powered portable apparatus, TIREX cords with Selenium-Neoprene Armor are your assurance of dependable, trouble-free performance.

SIMPLEX WIRE & CABLE CO.
79 Sidney St., Cambridge 39, Mass.

THE TREND OF AFFAIRS

(Concluded from page 174)

matically without the calculations and manual adjustments previously required. The rectifier is small enough to be mounted in a trailer for field work, and uses fluorescent illumination. Individual prints can be produced every five minutes.

Although projectors capable of effecting rectification are by no means new, the feature of the new Bausch and Lomb rectifier is its ability to correct automatically for tilt of the plane. In the mathematical calculations and mechanical and optical design underlying this instrument, John V. Sharp, '36, made significant contributions.

Reducing Fatigue

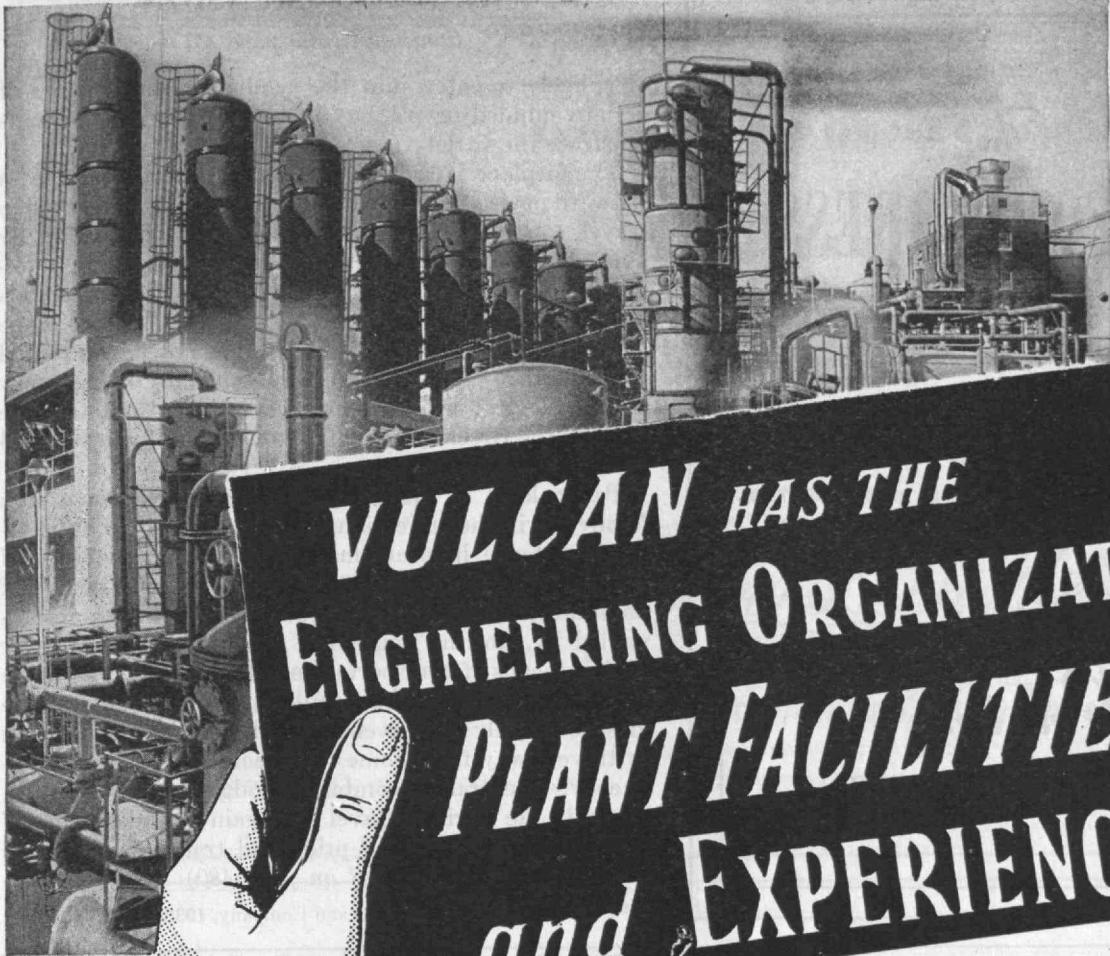
REPETITIVE bending acts on the crystalline structure of ferrous metallic substances in such a way as to cause fatigue. Under continued use, the ultimate breaking point may be but a small fraction of the initial breaking point; what is worse, adequate safety factors provided in the original design gradually are diminished, sometimes with disastrous results.

Recent research has disclosed that the fatigue of iron may be greatly minimized by alloying it with certain other metals. Metals which have been found useful in improving the fatigue strength of iron, in order of their effectiveness, are titanium, molybdenum, silicon, manganese, nickel, cobalt, and chromium. Such research as has led to this discovery is expected to suggest means for treating metals so that the fatigue life may be appreciably increased. At the same time, it aids in devising compositions of steels for construction purposes.

Generator for Fundamental Studies

AN electrostatic generator rated at 3,500,000 electron volts is one of several electronuclear machines planned for installation at the Brookhaven National Laboratory at Upton, Long Island, N. Y., during the coming year. The Brookhaven Laboratory is being built and administered as a regional center for the Northeast by Associated Universities, Inc., under the auspices of the United States Atomic Energy Commission. Director of the Brookhaven Laboratory is Professor Philip M. Morse, on leave of absence from the Department of Physics, M.I.T., and an editorial associate of *The Review* until his resignation last fall because of the pressure of his new duties.

According to M. Stanley Livingston, Associate Professor of Physics, also on leave of absence from M.I.T., the 3,500,000 electron volt machine being built by the General Electric Company first will be used for studies to determine, in part, the designs of other large machines and associated equipment for the Laboratory. Ultimately, the accelerator will serve as a source of high-energy particles to be directed in a beam of target elements for a variety of fundamental studies of the atomic nucleus. In some experiments, for example, the particles will be employed to study chipping or splitting atomic nuclei into fragments, such as radioactive isotopes now widely applied in research.



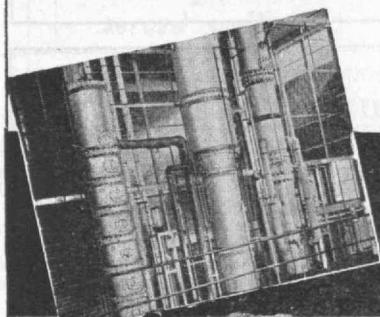
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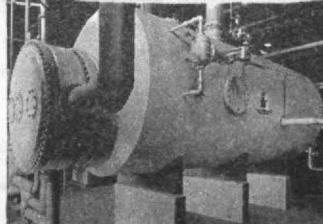
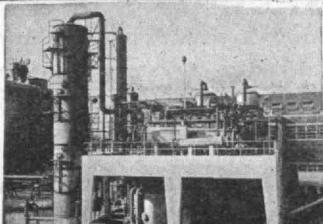
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AERIAL DIMENSION

(Continued from page 157)

or is likely to enter, into the symbolism and themes of arially minded people, but a few examples may perhaps illustrate the variety.

The airplane is the symbol of, and a challenge to, an outward projection of the human personality. The urge to travel, to see foreign lands and peoples, is intensified by aviation at the same time it makes easier such fulfillment. This outward psyche is sometimes regarded as a mode of escape; possibly it is. "You feel," wrote Anne Morrow Lindbergh in *Listen! the Wind*, "no longer rooted to the earth."¹² This Daedalus-Phaëthon mythology, now a technological reality, seems nevertheless not to have escaped the Greek fate. The escaping pair of wings is still earth-bound.

Particularly in the past half century, we have seen family life in the large mansions give way to an abbreviated existence in ever smaller apartments in cities of expanding dimensions. Today the home, as a center of parental influence and filial reverence, has been accompanied by, and no doubt has been the result of, ever swifter means of transportation. After World War I, the astronomical rise in the popular use of the automobile loosened family ties by enabling the younger generation to travel away from home with increasing ease and frequency. The trailer, combining lodging with mobility, caters to the spirit of travel but again at the expense of instilling a sense of local pride and tradition. Now the

(Concluded on page 180)

¹² New York: Harcourt, Brace and Company, 1938. \$2.50.



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AERIAL DIMENSION

(Concluded from page 178)

airplane, new instrument of space conquest, becomes a domicile for the human being. Thus, in his *Flight to Arras*,¹³ Saint Exupéry echoes this feeling: "All that tangle of tube and wiring has become a circulating network. I am an organism integrated into the plane. . . . The plane is my wet-nurse. . . . Suckled by the plane, I feel a sort of filial affection for it."

A note of sadness and tragedy often enters into the human spirit in flight; the sadness and tragedy of war. The bomb bursts at Los Alamos, Hiroshima, Nagasaki, and Bikini have added unhappy overtones to this motif.

Some writers find hope in a gradual assimilation of the airplane as a machine. John Masefield, in a letter describing his first flight, wrote: "I was glad to have done it — though I felt that it belongs to this generation, and not to mine." There is much evidence, both from wartime pilots and peacetime airmen, that an air-conditioned generation is coming into being. Thus, Saint Exupéry, perhaps the most articulate of them, put it this way: "Contrary to the vulgar notion, it is thanks to the metal, and by virtue of it, that the pilot rediscovers nature." He added: "The machine, which at first blush seems a means of isolating man from the great problems of nature, eventually plunges him more deeply into them." Yet Saint Exupéry confessed that the assimilation of the machine into the emotional and intellectual life of modern man will take time. "We shall have to age somewhat before we are able to write the folk songs of a new epoch."

Meantime, there is for our guidance that curse pronounced by Selden Rodman's Inventor in his invocation to the Earth-Mother, a curse upon all who will use wings for "any ambition higher than bold design and art to freely cruise."

¹³ New York: Reynal and Hitchcock, 1942. \$2.75.

FACULTY IN RELAXATION

(Continued from page 158)

and a member of the Housing Bureau staff in fashioning necklaces, earrings, brooches, and similar jewelry from hammered silver. A professor of mechanical engineering showed a stamp collection, and a professor of economics exhibited several cases of butterflies suitably tagged with Latin names.

Perhaps one of the most unexpected exhibits was that showing the materials used and the method of constructing fishing flies. Each step in the making of flies was described in considerable detail in such a way as might,

(Concluded on page 182)

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FACULTY IN RELAXATION

(Concluded from page 180)

at other periods of the year, tend to encourage absenteeism from the classroom.

It should not be concluded that the two display cases and 10 panels shown in the photographs on page 158 represent the full range of general and cultural interests and inclinations of the Institute's educators. Last spring Faculty members had the opportunity to display their creative talents in the field of monochrome and color photography, and at least one additional exhibit is planned to include displays of those extracurricular interests which are not so easily classified as photography or art. The art exhibit, therefore, is to be regarded as but one of a series of events planned by the Faculty Club, to provide opportunity for the Institute staff to display the results of its creative abilities. Certainly the handiwork of the participants in the photographic and art displays, which have already been held, provide ample evidence that the Faculty at M.I.T. can make its mark in fields far removed from that of technical specialization. What is more — it does.

STUDENTS AT PLAY

(Concluded from page 159)

Shown on page 159 are a few illustrations of highlights of the student athletic week end. Top left shows an exciting moment in the hockey game at the goal net of Boston University, and (right) students gathered for the event. At the bottom of the page are shown M.I.T. and Brown swimmers ready for the plunge. Close examination of the novelty event will indicate that the femininity of the Fencing Team is in dress only.

Whether or not an event of this kind will become an annual affair has not yet been determined. Certainly such activities are thoroughly in accord with, if only a small part of, the general M.I.T. objective to foster broad cultural education in addition to the high caliber of technical training for which the Institute has been favorably known for more than eight decades.

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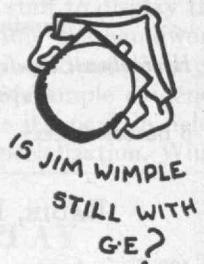
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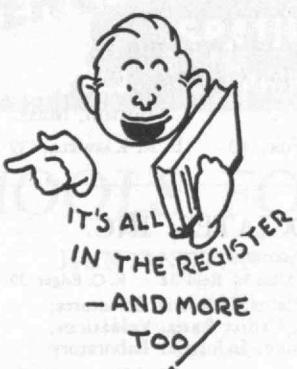
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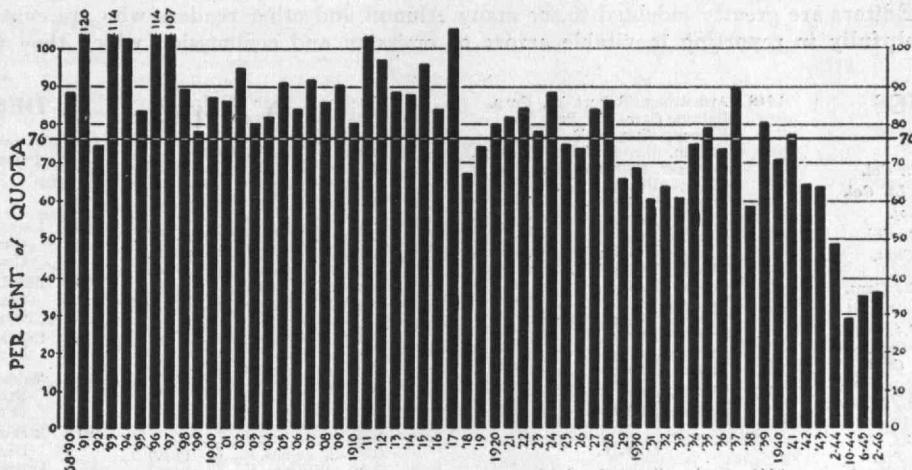


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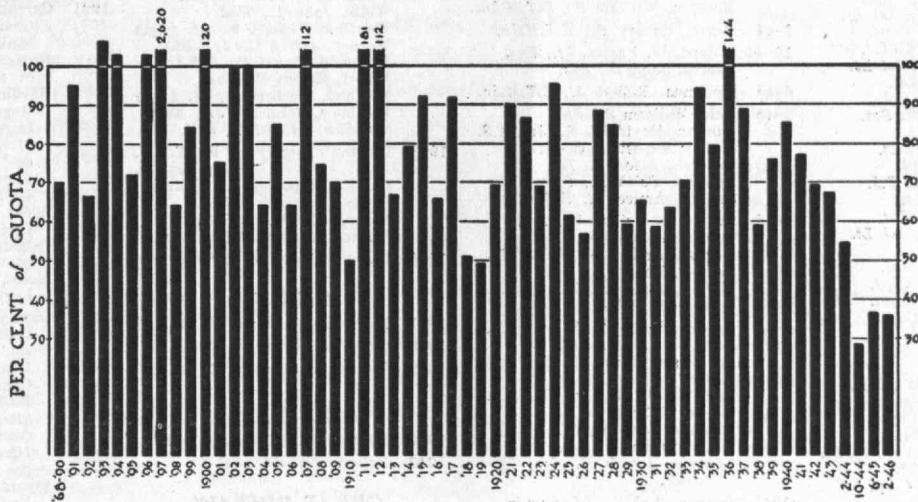
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1896 114 " " "
1897 107 " " "
1917 106 " " "

Lowest five classes: 10-44 28 per cent
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2-46 37 " " "
2-44 48 " " "
1938 59 " " "

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1936 144 " " "
1900 120 " " "
1907, 1912 112 " " "

Lowest five classes: 10-44 28 per cent
2-46 36 " " "
6-45 37 " " "
1919 49 " " "
1910 50 " " "

There is still time. If you have not contributed as yet, you still have opportunity to boost the standing of your class, raise the Fund another notch (this could be our first \$200,000 year!) — but primarily to give the Institute that material aid which it so greatly needs and justly merits.

M.I.T. MEN AT WAR

According to Alumni Association records, 10,110 Institute Alumni, including 38 Admirals, 14 Commodores, and 101 Generals, were reported as being in the active naval or military service of the United Nations. There were 772 Alumni who had been decorated, and 230 who had made the supreme sacrifice.

With its issue dated November, 1942, The Technology Review began publishing "M.I.T. MEN AT WAR." Although hostilities have ended, The Review plans to continue this page for the next several months in order to record information on M.I.T. men in the Services which, to date, has been impossible to obtain. The Review Editors are greatly indebted to the many Alumni and other readers who are continuing to cooperate so helpfully in reporting inevitable errors of omission and commission which they note in these listings.

NEW LISTINGS

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1901 Monaghan, James F., *Col.*
 1916 Harrower, Paul D., *Lt. Col.*
 1924 Gilson, Frank C., *Maj.*
 1925 Griswold, Roger, *Lt. Col.*
 1933 Loud, Norman D., *Capt.*
 Nedbor, Eugene, *Capt.*
 Payzant, Richard E., *Capt.*
 1935 Marderosian, Avedis D., *1st Lt.*
 1940 Lish, Kenneth C., *T.4.*
 Kroner, Thomas D., *Capt.*
 Morgan, Donald A., *Capt.*
 1941 Collins, Richard C., Jr., *Pfc.*
 Johnson, Nels E., Jr., *Lt. Col.*
 Loewi, Roger W., *Pfc.*
 1942 Hellige, Peter W., *T.5.*
 Malone, Richard S., *Pfc.*
 2-44 Gunther-Mohr, Robert, *T.3.*
 Land, Gay V., *Pfc.*
 Radford, Edward P., Jr., *Lt.*
 10-44 Taylor, Samuel K., *Pvt.*
 6-45 Cirelli, Elias D., *Sgt.*
 Lindberg, Russell A., *Pfc.*
 Prokesch, Clemens E., *2d Lt.*
 6-46 Hurd, Everett A., *1st Lt.*
 Payne, Louis A., *Capt.*
 9-46 Colon, Edmund, *Lt.*
 1947 Allen, John U., *Lt. Col.*
 Amer, Kenneth B., *Corp.*
 Anderson, Robert M., *O.C.*
 Barschdorff, Milton P., *Lt. Col.*
 Bennett, Edward E., *Capt.*
 Berberich, Joseph F., *1st Lt.*
 Bernard, Robert P., *Capt.*
 Bernstein, Maurice S., *T.4.*
 Blanchard, Earle P., *1st Lt.*
 Clarke, Edwin R., *Maj.*
 Coker, Sears Y., *Lt. Col.*
 Cottle, Donald W., *M. Sgt.*
 Dice, Robert I., *Maj.*
 Dugundji, James, *1st Lt.*
 Fleisher, Aaron, *Capt.*
 Fullerton, Charles E., *T.5.*
 Garen, Stanley, *2d Lt.*
 Gerhardt, Paul, *3d, Pvt.*
 Gilbert, Wilfred C., *1st Lt.*
 Graffy, Richard, *Lt.*
 Green, Stewart G., *Maj.*
 Harvey, Robert D., *Capt.*
 Hazard, Charles S., *Capt.*
 Hirsch, Harold R., *Capt.*
 Hoffman, Dan W.
 Johnson, David R., *Sgt.*
 Kaufman, Warren J., *1st Lt.*
 Kennedy, Kenneth W., *Maj.*
 Kuttruff, Louis C., *1st Lt.*
 MacNeill, Paul G., *Capt.*
 Maisel, Daniel S., *Maj.*
 Miaskiewicz, Richard F., *1st Lt.*
 Midney, John H., *T.3.*
 Mitten, Loring G., *Corp.*
 Mohr, Jack L., *Pvt.*
 Nosek, Thaddeus M., *Lt.*
 Peach, Robert W., *T.4.*
 Percival, Worth H., *1st Lt.*
 Raye, John F., *Capt.*
 Rotman, Walter, *T. Sgt.*
 Schlein, Helmar, *T.4.*
 Shaeffer, William K., *Pvt.*
 Sharpe, Philip E., *1st Lt.*
 Siegfried, Robert E., *1st Lt.*
 Smith, David G., *Capt.*
 Sorte, Martin E., *Lt. Col.*
 Terry, John R., Jr., *Capt.*
 Todd, Donald A., *S.Sgt.*
 Wasserman, Aaron E., *1st Lt.*
 Woodbury, Harry G., Jr., *Lt. Col.*
 Wright, John H., Jr., *T.5.*

1948 Armstrong, Robert M., *Corp.*
 Belton, Carol E., *Pvt.*
 Finney, Charles E., *T.3.*
 Gillian, Raymond M., Jr., *Pfc.*
 Hammer, Richard, *Pvt.*
 Light, Allen E., *T.5.*
 Magarian, Charles A., *T.4.*
 Marshall, Fred Y., Jr., *Pfc.*
 Mork, Donald C., *2d Lt.*
 Nicholson, John F., *Pfc.*
 Plouffe, Richard H., *Pfc.*
 Rosen, Charles, *Pfc.*
 Rothery, Paul R., Jr., *Pvt.*
 Samitas, Dean A., *Corp.*
 Shortell, Albert V., Jr., *Pfc.*
 Smucker, John R., *3d, 2d Lt.*
 Vallas, Theodore P., *Sgt.*

1949 Hinves, John R., *T.5.*
 Mockus, Edmund S., *Sgt.*

U.S.N.

1921 Taylor, Perry R., *Capt.*
 1922 Lingle, Myron K., *Lt.*
 Morrow, Lorentz A., *Lt. Comdr.*
 1933 Fleming, D. Malcolm, *Lt.*
 1934 Black, William C., *Lt.*
 Murphy, Walter D., *Lt.*
 1936 Fluke, John M., *Comdr.*
 1939 Felix, Samuel P., Jr., *Ens.*
 Reading, Thomas J., *S.1c.*
 1940 Murphy, Paul M., *Ens.*
 1941 Monrad, Robert T., *Lt.*
 Morrow, George M., *3d, Lt.*
 1942 Dierks, Frederick M., *Ens.*
 Grannis, Peter E., *S.1c.*
 Moulton, William H., *E.T.M.2c.*
 2-44 Morse, Robert R., *E.T.M.2c.*
 10-44 Lillard, W. Parlin, Jr., *Ens.*
 Reeves, John D., *Ens.*
 6-45 McKenna, Robert J., *E.T.M.3c.*
 2-46 Gale, William S., *Ens.*
 Morgan, David W. R., Jr., *A.S.*
 Muller, Frederick C., *Lt.*
 Peacock, Alton E., *Lt.*
 Roberts, Colin A., *S.1c.*
 Sciuillo, Amico V., *E.T.M.3c.*
 6-46 Dewhurst, Roland H., *A.S.*
 Gauthraud, John A., *Ens.*
 Horton, Arthur B., Jr., *Mid.*
 Loomis, Robert S., *Ens.*
 Merrill, James E., Jr., *Ph.M.2c.*
 Ritterhoff, Robert E., *Ens.*
 9-46 Bates, Joseph C., Jr., *Lt. (j.g.)*
 Daro, Philip E., *Mid.*
 de Moraes, Carlos A., *Ens.*
 Green, Julien, *Ens.*
 Lees, Lewis W., Jr., *Lt. (j.g.)*
 Meyer, Robert E., Jr., *Lt. (j.g.)*
 Ritchey, John A., *Lt.*
 Sas, Norman A., *Ens.*
 Thomas, Joseph R., Jr., *Lt. Comdr.*
 1947 Beaver, Bud K., *Lt. Comdr.*
 Blount, Robert H., *Ens.*
 Bock, Paul, *A.C.*
 Boyer, Robert C., *Ens.*
 Brooks, Charles E., *E.M.1c.*
 Campbell, Harry D., *Ens.*
 Cochrane, Richard L., *Lt. Comdr.*
 Cole, Walter F., Jr., *W.T.3c.*
 Coleman, George W., *Ens.*
 Crow, Thomas S., *Lt.*
 Cuccias, Francis P., *Lt. Comdr.*
 Cullin, William H., *Lt. Comdr.*
 Dougherty, Robert M., *Lt.*
 Eddy, Thomas R., *Lt. Comdr.*
 Espy, John L., *Lt. (j.g.)*
 Farth, Edward W., *Lt. Comdr.*
 Fenton, William B., Jr., *Ens.*

FitzHugh, Mayo M., Jr., *Lt.*
 Fulkerson, Edward F., *C.M.*
 (C.B.) 2c.
 Garrett, Ned, *Lt. Comdr.*
 Hadler, Jacques B., *Lt. Comdr.*
 Hatch, Robert L., *Ens.*
 Haushutter, Carl H., *Ens.*
 Kay, Herbert, *Ens.*

LaForce, Walter P., *A.R.M.3c.*
 Langran, Joe W., *Lt. Comdr.*
 Larson, Warren L., *Lt. (j.g.)*
 Lynch, William O., Jr., *Lt.*
 McElroy, Richard S., Jr., *Lt. Comdr.*
 Mack, Leslie M., *Ens.*
 Marks, Beal, *Lt.*
 Marshall, Kenneth A., *A.C.*
 Marshall, William A., Jr., *C.M.1c.*
 Mitchell, Joe L., *Ens.*
 Musser, Robert J., *Lt.*

O'Neill, James E., *Lt. (j.g.)*
 Page, William R., *Lt. (j.g.)*
 Perry, Albert D., Jr., *Ens.*
 Richards, John M., *Lt. Comdr.*
 Ripley, John C., *Lt.*
 Russell, Carl, Jr., *Lt.*
 Savage, Robert E., *Lt. (j.g.)*
 Schmidlin, Herbert L., *Lt.*
 Schwoerer, Frank, Jr., *Lt. (j.g.)*
 Seidler, Robert L., *A.S.*
 Seikel, Roy L., *Ens.*
 Sloan, Russell W., *Lt.*

Sullivan, Joseph A., *Lt. (j.g.)*
 Symmes, Parker, *A.C.*
 Ullman, John G., *Lt.*
 Wadsworth, Robert F., *Lt. Comdr.*
 Weinberger, Leon W., *Lt.*
 Wells, John T., *Ens.*
 Wentink, Richard S., *Lt. (j.g.)*
 Werner, Alfred C., Jr., *Ens.*
 Westfield, Erich R., *R.T.2c.*
 Whorff, Robert P., *Ens.*
 Wieland, Herbert C., *Lt. (j.g.)*
 Williams, John B., Jr., *Ens.*
 Winslow, Arnold A., *C.M.*

1948 Champlin, Jerry B. F., *E.T.M. 3c.*
 Glazier, Francis M., Jr., *A.C.*
 Grady, Paul H., *E.T.M.3c.*
 Kreer, John B., Jr., *E.T.M.3c.*
 Watts, David F. H., *S.1 Aer.M.*
 Cohen, Albert, *E.T.M.3c.*

1949 Breitweisser, George F., Jr., *Lt.*
 Caso, Salvatore R., *E.T.M.3c.*
 Haberkorn, George B., *E.T.M. 3c.*

1947 Martin, Basil A., Jr., *Capt.*
 1947 Nelson, Percy L., *1st Lt.*

1947 GREAT BRITAIN
 1914 Collins, A. E. Gerald, *Group Capt., R.A.F.*
 1947 Coverdale, Harold M., *Lt., Royal Navy.*

1941 CANADA
 1947 Grubb, Eric A., *Lt., Army Cadet, Army.*

1932 AUSTRALIA
 1932 Robinson, Russell S., *Flight Lt., R.A.A.F.*

DECORATIONS

(In addition to those previously reported in The Review)

U.S.A.

1907 Leavell, John H., *Col.*, Distinguished Service Cross; Croix de Guerre.
 1909 Blood, Kenneth T., *Maj. Gen.*, Legion of Merit and Oak Leaf Cluster.
 1910 Lewis, Richard W., *Col.*, Legion of Merit.
 1912 Mabbott, Harold O., *Col.*, Bronze Star; Croix de Guerre (France).
 1916 Blakney, Raymond B., *Maj.*, Distinguished Service Medal; Lewis, Chester F., *Lt. Col.*, Croix de Guerre.
 1917 Aldrin, Edwin E., *Col.*, Air Medal.
 1920 Moffat, Fraser M., Jr., *Col.*, Medaille de la Reconnaissance Francaise; Whitten, Lyman P., *Brig. Gen.*, Distinguished Service Medal; Chevalier, Legion of Honor; Croix de Guerre with Palm (France); Commander, Order of the Saints Mauritius and Lazarus (Italy); Order of Virtuti Militari 3d Class (Poland).
 1921 Carroll, Franklin O., *Brig. Gen.*, Distinguished Service Medal.
 Davis, Merle H., *Col.*, Legion of Merit (3); Bronze Star.
 Hardin, John R., *Col.*, Distinguished Service Medal; Legion of Merit (2); Order of the British Empire; Croix de Guerre with Palm (France); Order of Leopold (Belgium).
 Loper, Herbert B., *Brig. Gen.*, Distinguished Service Medal; Honorary Commander, Order of the British Empire.
 Moses, Raymond G., *Brig. Gen.*, Legion of Merit; Bronze Star.
 1922 Gayle, H. Clifford, *Lt. Col.*, Legion of Merit.
 Hoge, William M., *Maj. Gen.*, Distinguished Service Order; Companion, Order of the Bath (Great Britain); Legion of Honor; Croix de Guerre (France); War Cross (Czechoslovakia); Order of the Fatherland (Russia).
 Styer, Wilhelm D., *Lt. Gen.*, Distinguished Service Medal (2); Knight Commander, Order of the British Empire; Distinguished Service Star (Philippines).
 1923 Atwood, Frank J., *Col.*, Legion of Merit.
 Christmas, John K., *Brig. Gen.*, Honorary Commander, Order of the British Empire.
 Nisley, Harold A., *Brig. Gen.*, Distinguished Service Medal; Legion of Merit; Bronze Star; Honorary Commander, Order of the British Empire; Chevalier, Legion of Honor; Croix de Guerre with Palm (France); Commander, Grand

Ducal National Ordre de la Couronne de Chene; Croix de Guerre (Luxembourg); Commander, Order of Orange-Nassau (Netherlands); Commander, Order of Leopold II; Croix de Guerre with Palm (Belgium).	1938	Rush, Clarence W., <i>Capt.</i> , Bronze Star.	9-46	Stemen, Roger F., <i>Maj.</i> , Distinguished Flying Cross; Air Medal.	Bennett, Bradley F., <i>Comdr.</i> , Bronze Star.
Olmsted, Burnett R., <i>Col.</i> , Legion of Merit.	1939	Cutler, Monarch L., <i>Capt.</i> , Bronze Star.	1947	Clarke, Edwin R., <i>Maj.</i> , Bronze Star.	Knoll, Denys W., <i>Capt.</i> , Bronze Star.
Stewart, Alexander C., <i>Col.</i> , Bronze Star.		Griffin, Thomas F., Jr., <i>Capt.</i> , Purple Heart (3).		Davis, Theodore, <i>S.Sgt.</i> , Purple Heart (2).	1940 Chase, Irving H., <i>Lt. Comdr.</i> , Bronze Star.
Teale, Willis E., <i>Col.</i> , Legion of Merit; Ordem do Merito Militar (Brazil).		Shunk, Peter W., <i>Col.</i> , Bronze Star.		Dengler, Carl E., <i>Lt.</i> , Air Medal (2).	Greene, Thomas J., <i>Comdr.</i> , Navy Cross.
1924 Bailey, Harry C., <i>Col.</i> , Bronze Star.	1940	Arch, Arnold, <i>Capt.</i> , Bronze Star.		Hehn, Lester C., <i>Pvt.</i> , Purple Heart; Croix de Guerre.	Hooper, Edwin B., <i>Comdr.</i> , Bronze Star.
Hennessy, John F., <i>Lt. Col.</i> , Legion of Merit.		Coan, Jack L., <i>Lt. Col.</i> , Legion of Merit; Bronze Star (3); Croix de Guerre with Silver Star.		Hoffman, Dan W., Purple Heart.	Livingston, Chester G., <i>Lt. Comdr.</i> , Distinguished Flying Cross.
Oxnard, Thomas T., <i>Maj.</i> , Air Medal.		Cowhey, Joseph L., <i>Col.</i> , Legion of Merit; Bronze Star (3); Purple Heart.		Lighthall, Harry, Jr., <i>Pvt.</i> , Purple Heart.	Russoniello, Louis V., <i>Lt.</i> , Purple Heart.
1925 Barnes, Hubert D., <i>Col.</i> , Bronze Star (2); Purple Heart.		Dickson, Richard P., <i>Capt.</i> , Bronze Star.		McCandless, Robert K., <i>2d Lt.</i> , Purple Heart.	Fawkes, Emerson E., <i>Comdr.</i> , Legion of Merit.
Holman, Jonathan L., <i>Brig. Gen.</i> , Bronze Star.		Esslinger, Robert J., <i>Capt.</i> , Navy Cross; Silver Star; Purple Heart.		McEvoy, Thomas M., Jr., <i>1st Lt.</i> , Air Medal.	Mitchell, Gilbert H., <i>Comdr.</i> , Bronze Star.
1926 Daniels, Robert W., <i>Col.</i> , Silver Star; Legion of Merit; Purple Heart.		Haywood, Oliver G., Jr., <i>Col.</i> , Legion of Merit (2).		Maisel, Daniel S., <i>Maj.</i> , Bronze Star.	Thompson, Robert S., <i>Lt. Comdr.</i> , Bronze Star.
Gleason, Isaac W., <i>Lt. Col.</i> , Order of the British Empire; Crown of Italy, degree of Knight Officer.		Klivans, Norman R., <i>Maj.</i> , Bronze Star.		Martin, Jay J., Jr., <i>Capt.</i> , Bronze Star.	Wulff, John T., <i>Comdr.</i> , Bronze Star.
Gruver, Earl S., <i>Col.</i> , Legion of Merit (2); Bronze Star; Order of the British Empire.		Kreiser, Oscar G., <i>Lt. Col.</i> , Bronze Star.		McKissic, Richard F., <i>1st Lt.</i> , Distinguished Flying Cross; Air Medal (4).	1941 Christie, Warren B., <i>Comdr.</i> , Bronze Star (2).
Hill, Donald C., <i>Col.</i> , Legion of Merit; Special Breast Order of Yun Hui (China).		Morgan, Donald A., <i>Capt.</i> , Bronze Star.		Mickevic, Edwin J., <i>2d Lt.</i> , Bronze Star.	Curtis, Robert W., <i>Comdr.</i> , Silver Star; Bronze Star.
1927 Auchincloss, Samuel S., Jr., <i>Col.</i> , Distinguished Service Medal; Legion of Merit; Bronze Star.		Shufrin, Leo, <i>1st Lt.</i> , Bronze Star.		Robinson, Richard L., <i>Capt.</i> , Air Medal (3).	Dodson, Charles O., Jr., <i>Lt. (j.g.)</i> , Navy Cross; Air Medal.
Dillon, Leo J., <i>Col.</i> , Legion of Merit; Bronze Star (2).		Stoddard, Philip A., <i>Maj.</i> , Bronze Star (2).		Sharpe, Philip E., <i>1st Lt.</i> , Bronze Star.	Grady, Daniel B., <i>Lt. Comdr.</i> , Legion of Honor and Merit (Haiti).
1928 Dempewolf, A. Starke, <i>Maj.</i> , Bronze Star.		Baker, James B., <i>Lt. Col.</i> , Air Medal.		Terry, John R., Jr., <i>Capt.</i> , Distinguished Service Cross; Bronze Star; Purple Heart (4); Order of the Red Star (Russia).	Jorgensen, John B., <i>Lt. Comdr.</i> , Air Medal.
1929 David, Marshall S., <i>Lt. Col.</i> , Bronze Star.		Hermiston, John S., <i>Capt.</i> , Air Medal (18).		Wright, John H., Jr., <i>T.S.</i> , Purple Heart.	Meyer, Bernard H., <i>Comdr.</i> , Silver Star; Bronze Star.
Mead, Francis M., <i>Capt.</i> , Legion of Merit.		Leonard, Albert C., <i>Lt.</i> , Air Medal (5).	1948	Finney, Charles E., <i>T.S.</i> , Bronze Star.	Pinney, Frank L., Jr., <i>Comdr.</i> , Bronze Star.
Pistolas, Arthur N., <i>Maj.</i> , Bronze Star.		Muller, Lawrence J., <i>T. Sgt.</i> , Bronze Star.			1942 Atlas, Sid F., <i>Lt.</i> , Air Medal.
1930 Fleming, William D., <i>Col.</i> , Bronze Star.		Shtogren, Anthony T., <i>Lt. Col.</i> , Legion of Merit; Croix de Guerre with Palm (France).			Du Pont, Reynolds, <i>Q.M.C.</i> , Purple Heart.
1931 Fleming, Robert J., Jr., <i>Col.</i> , Legion of Merit; Bronze Star; Croix de Guerre with Palm (France); Order of the White Lion; War Cross (Czechoslovakia); Order of the Fatherland (Russia).		Smolensky, Stanley M., <i>Maj.</i> , Bronze Star.			Lord, Edwin R., <i>Lt. (j.g.)</i> , Bronze Star.
Goodhand, O. Glenn, <i>Maj.</i> , Air Medal (6); Bronze Star.		Stadig, John E., <i>Lt. Col.</i> , Bronze Star.			Meigs, Charles H., <i>Comdr.</i> , Bronze Star.
1932 Crowe, William J., <i>Col.</i> , Bronze Star (3); Medaille de la Reconnaissance Francaise.		Arend, John S., <i>Capt.</i> , Air Medal (2).			2-44 Middleton, John R., Jr., <i>Comdr.</i> , Silver Star.
Demas, James N., <i>Capt.</i> , Bronze Star.		Aschaffenburg, Hans W., <i>Pfc.</i> , Silver Star.			10-44 Mandel, Stanley, <i>Ens.</i> , Purple Heart.
Heath, Louis T., <i>Col.</i> , Croix de Guerre with Palm.		Cathcart, Richard, <i>Capt.</i> , Bronze Star.			Neyman, Robert I., <i>Comdr.</i> , Bronze Star.
Lowery, G. Arthur, <i>Lt. Col.</i> , Bronze Star.		Davison, John P., <i>Lt.</i> , Air Medal (2).			1943 Bliss, Louis K., <i>Lt. Comdr.</i> , Air Medal (4).
Palmer, George W., <i>Col.</i> , Legion of Merit; Bronze Star.		Ely, Robert J., <i>Capt.</i> , Air Medal.			Smith, James H., Jr., <i>Lt. Comdr.</i> , Distinguished Flying Cross; Air Medal.
1933 Gerhard, Frederick W., Jr., <i>Col.</i> , Legion of Merit.		Gallagher, John F., <i>Maj.</i> , Bronze Star.			9-46 Bates, Joseph C., Jr., <i>Lt. (j.g.)</i> , Silver Star.
Green, Maurice G., <i>Lt. Col.</i> , Bronze Star.		Jones, Jack J., <i>Maj.</i> , Silver Star, Distinguished Flying Cross.			Garrett, Wallace H., Jr., <i>Lt. Comdr.</i> , Silver Star.
Loud, Norman D., <i>Capt.</i> , Silver Star; Purple Heart.		Kluver, Arnold F. A., <i>Lt. Col.</i> , Air Medal.			Wright, Clarence C., <i>Lt. Comdr.</i> , Bronze Star.
Piskadlo, Matthew H., <i>Lt. Col.</i> , Bronze Star.		Krucklin, Robert E., <i>Capt.</i> , Bronze Star.			1947 Atkins, Victor K., <i>Lt.</i> , Silver Star.
Withers, George K., <i>Col.</i> , Legion of Merit; Bronze Star; Order of the British Empire; Legion of Honor; Croix de Guerre (France).		Rubin, Leon E., <i>Lt.</i> , Purple Heart.			Duncan, George C., <i>Lt. Comdr.</i> , Navy Cross; Silver Star; Distinguished Flying Cross; Air Medal (3).
1934 Battit, Beshara E., <i>Capt.</i> , Purple Heart, posthumously.		Wilcox, William R., <i>Maj.</i> , Bronze Star; Purple Heart.			McNitt, Robert W., <i>Comdr.</i> , Silver Star (2); Navy and Marine Corps Medal.
Booth, Louis S., <i>M. Sgt.</i> , Bronze Star.		Lewis, Gilbert W., <i>T. Sgt.</i> , Bronze Star.	1933		Seedlock, Walter F., <i>Lt. Comdr.</i> , Purple Heart.
1935 Colby, John H., <i>Lt. Col.</i> , Legion of Merit; Bronze Star (2).		Lusti, John, <i>Lt.</i> , Bronze Star.			
Fraser, William B., <i>Col.</i> , Legion of Merit; Bronze Star; Croix de Guerre (France).		Record, Frank, <i>Capt.</i> , Air Medal.			U.S.C.G.
Nelson, Bernard H., <i>Maj.</i> , Legion of Merit.		Stephens, Marvin C., <i>Lt.</i> , Air Medal (2).			Pfeiffer, Arthur, <i>Lt. Comdr.</i> , Navy and Marine Corps Medal.
1937 Benson, Robert E., <i>Maj.</i> ; Legion of Merit.		Michaels, Alan S., <i>Lt.</i> , Bronze Star.	1934		1933 Sampas, Michael, <i>Lt. Col.</i> , Distinguished Flying Cross; Purple Heart.
Harris, Rutherford, <i>Capt.</i> , Bronze Star.		10-44 Auty, Robert P., <i>Lt.</i> , Air Medal.			1938 Crocker, Frederic P., <i>2d Lt.</i> , Air Medal.
Hartmann, William E., <i>Lt. Col.</i> , Bronze Star.		Cutter, Henry T., Jr., <i>1st Lt.</i> , Bronze Star.			1941 Barnard, Richard I., <i>Lt.</i> , Purple Heart.
	6-45	Ihde, William M., <i>Lt.</i> , Air Medal (4).	1936		GREAT BRITAIN
		Macdonald, Ian Hunter, <i>Pvt.</i> , Bronze Star.			Collins, A. E. Gerald, <i>Group Capt.</i> , R.A.F., Commander, Order of the British Empire.
		Moranian, Thomas, <i>Lt.</i> , Air Medal; Distinguished Flying Cross.	1938		
		Nowell, John T., <i>S. Sgt.</i> , Bronze Star.			CANADA
		Rescher, Jay G., <i>Lt.</i> , Air Medal (10); Purple Heart.			Massey, Denton, <i>Group Capt.</i> , R.C.A.F., Order of the British Empire.
	2-46	Gimenez, Ernest, <i>T. Sgt.</i> , Purple Heart.	1939		

ALUMNI AND OFFICERS IN THE NEWS

Elections and Appointments

- » For R. E. BAKENHUS '96, Rear Admiral, U.S.N. (retired), as secretary of the American Institute of Consulting Engineers.
- » For FRANCIS J. CHESTERMAN '05, as president of the Bell Telephone Company of Pennsylvania and the Diamond State Telephone Company of Delaware.
- » For THOMAS C. DESMOND '09, as president of Phi Beta Kappa Associates.
- » For TENNEY L. DAVIS '13, as editor-in-chief of *Chymia*, a new international annual devoted to the history of chemistry and sponsored by the Edgar F. Smith Memorial Collection at the University of Pennsylvania. Under the direction of a board of American editors, it will be published (in six languages) by the Oxford Press in London.
- » For MELVILLE F. COOLBAUGH '15, as a member of the nonpartisan committee named by President Truman to determine the character and quantity of United States resources available for economic aid abroad without endangering domestic economy.
- » For EARL R. MELLEN '16, as president of the Weston Electrical Instrument Corporation.
- » For GEORGE W. OUSLER '16, as president of the Pennsylvania Electric Association.
- » For EARL H. EACKER '22, as a director of the American Gas Association.
- » For EDWARD A. LARNER '22, as United States manager and attorney of the Employers' Liability Assurance Corporation, Ltd., and president of the American Employers' Insurance Company and the Employers' Fire Insurance Company.
- » For J. ROBERT BONNAR '27, as acting chairman of the research committee of the American Association of Textile Chemists and Colorists.
- » For GEORGE I. CHATFIELD '28, as vice-president of Kenyon and Eckhardt, Inc., New York City.
- » For WALTER C. VOSS '32, as member of the National Research Council representing the American Society for Testing Materials in the division of engineering and industrial research and as chairman of the committee on building codes of the American Institute of Architects.
- » For ROBERT H. WINTERS '33, as one of six new parliamentary assistants making up the so-called junior cabinet of Canada.

Honors

- » To NATHAN C. GROVER '96, an award from the Washington Society of Engineers for outstanding professional services.
- » To 12 Alumni and staff members listed in the November issue of the *Chemical Bulletin* of the Chicago section of the American Chemical Society as among the 10 ablest chemists and chemical engineers now working in the United States in each of 20 specialized fields, namely: WARREN K. LEWIS '05, CHARLES A. KRAUS '08, RAY P. DINSMORE '14, ALLEN ABRAMS '15, ROBERT E. WILSON '16, HERMAN A. BRUSON '23, JOHN T. BLAKE '24, HOYT C. HOTTEL '24, CHARLES A. THOMAS '24, CHARLES D. CORRELL, ERNST A. HAUSER, and WALTER C. SCHUMB, staff.
- » To ROBERT E. WILSON '16, membership in the National Academy of Sciences.
- » To EDWARD R. SCHWARZ '23, the Olney Medal of the American Association of Textile Chemists and Colorists for outstanding achievement in textile chemistry.
- » To HAROLD E. EDGERTON '27, fellow membership in the Photographic Society of America for his pioneering research and development in high-speed and stroboscopic photography.
- » To ROBERT H. MACY '33, the second railroad classificational award of \$2,000 in the Design-for-Progress Program of the James F. Lincoln Arc Welding Foundation.
- » To ERNEST R. KASWELL '39, first prize for a paper presented at the national convention of the American Association of Textile Chemists and Colorists in Chicago.
- » To ROBERT J. VAN DE GRAAFF, staff, the 24th Duddell Medal of the Physical Society in London for the invention and development of his high-voltage electrostatic generator.

DEATHS

*Mentioned in class notes.

- FRANK L. PERIN '79, October 15.
- HENRY W. BLISS '83, November 1.
- ARTHUR G. ROBBINS '86, October 26.*
- SAVORY C. HATHAWAY '87, August 14.
- ARTHUR J. CONNER '88, August 30.
- EDWARD S. GOULD '88, August 6.*
- ANNIE SABINE SIEBERT '88, November 7.
- RALPH R. LITTLEFIELD '92, November 5.
- HERBERT R. MOODY '92, October 20.*
- DANA M. PRATT '92, August 19.*

- ANTHONY M. ROBESON '94, November 15.*
- ROBERT M. CANNON '95, January 22.
- GEORGE E. STRATTON '96, November 8.*
- CHESTER D. HUBBARD '97, October 4.
- FRANK E. MANSFIELD '97, in September.
- EDWIN R. MOTCH '97, June 8.
- FREDERIC L. BISHOP '98, October 10.*
- HOWARD SNELLING '98, date unknown.*
- JAMES S. GILL '99, in 1945.*
- CHESTER J. HOGUE '99, November 4, 1946.
- C. BURTON COTTING '00, November 17.
- JOHN C. FRUIT '02, October 29.*
- ARCHIBALD GARDNER '02, January 24.*
- JOHN A. HUTCHINSON '02, September 14.*
- FRANK G. LANE '02, November 10.*
- JOHN S. BRIDGES, JR., '03, in May.
- DON L. GALUSHA '04, October 7.*
- DAN ADAMS '05, December 1.
- PHELPS WYMAN '05, November 16.
- JOHN H. FELLOWS '06, October 7.*
- SAMUEL A. NASH '06, October 12.*
- OCTAVUS L. PEABODY '07, November 14.*
- WILLIAM H. JONES '09, October 17.
- HUGH J. LOFTING '09, September 26.*
- GUY W. BOLTE '10, September 21.
- ROBERT H. LOMBARD '10, October 11.*
- W. DEXTER EVERETT '10, November 19.
- JULIAN S. GRAVELY, '11, November 10.
- HERBERT S. CUMMINGS '12, January 10.*
- STUART J. SCHOFIELD '12, July 23.*
- FRED C. BATELLOR '14, August 24.*
- JESSE E. MARTOLF '14, date unknown.
- JOSEPH P. CONNOLY '17, October 7.
- GEORGE F. FRENCH '19, October 24.
- ALBERT P. SCHEFER '19, August 9.
- MAX SHLAGER '20, October 11.*
- PHILIP B. SOMERBY '20, September 3.*
- MAURICE G. TOWNSEND '21, September 24.
- BASIL GORDON '22, August 4.
- URIAH N. MURRAY '22, October 7, 1946.
- GEORGE M. ROBERTSON '22, May 31.
- WILLIAM K. WHITE '23, June 16.
- WALTER H. EMERSON '26, August 19.
- ROBERT N. OAKLEY '27, October 10, 1945.*
- ALEXANDER G. SHISKO '27, January 9, 1945.*
- DAVID LARR '29, August 16.
- KEITH B. HUDSON '30, in August.
- WILLIAM R. POWER, JR., '32, November 3.
- FRED LEE LAMB '38, November 8, 1943.*
- WALTER A. REIMAN '40, June 5, 1946.
- FREDERICK R. EVANS '41, September 15, 1946.*
- PAUL R. STONE '41, date unknown.
- JOSEPH J. DE CONTO '43, February 8.
- ROBERT E. SEIBELS, JR., '46, August 30.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Atlanta Alumni Association
of the M.I.T.

A special meeting of our Association was called on November 5 to receive H. E. Lobdell '17, Executive Vice-president of the Alumni Association, who favored us with a visit while on a southern trip.

An evening dinner was served at the Atlanta Athletic Club, after which Mr. Lobdell gave us a very fine and interesting account of current activities at the Institute. Entrance requirements, curriculum, finance, the merit system, financial help to deserving students, housing of the returned war veteran students, new building programs, and new future projects were dwelt upon, after which a round-table discussion was available for all attending the dinner. Billy Huger '22, our esteemed and good-natured Honorary Secretary, was master of ceremonies, introducing Mr. Lobdell to the Alumni. All the local members here in Atlanta wish to extend our appreciation of the pleasure we received from Mr. Lobdell's visit.

We now have 52 members and meet the last Friday of every month at an informal noon dinner at the Atlanta Athletic Club. The following members attended this meeting: Cecil A. Alexander, Jr., '43, Roger W. Allen '27, Edgar Andrews '45, Charles E. Baker '07, Martin H. Burckes '23, Duncan A. Crawford '26, Ernest H. Dodge '27, Richard L. Gatewood '25, Richard J. Hammerstrom '42, William E. Huger '22, Sidney B. Jewett '28, Leon B. Locklin '28, Clifford S. Read '18, Clarence B. Rogers '14, Burgos Elberto Gonzales-Rubio '45, Bruce E. Sherrill '28, Charles A. Smith '99, Ellis S. Tisdale '15, and Lawrie H. Turner '99. — **LAWRIE H. TURNER '99, Secretary, 625 Sherwood Road, Northeast, Atlanta, Ga.**

Indiana Association of the M.I.T.

The Association opened its 1947-1948 season at the Naval Armory in Indianapolis on October 28. We were fortunate in having as our guest speaker John Wulff, Professor of Metallurgy at the Institute, who talked informally on the plans for new buildings at the Institute and on his experiences in teaching undergraduates. An interesting and spirited discussion ensued by the various members of our group, including Dean Potter '03 of Purdue, Mr. Welch '13, Mr. Harvey '28, and others. Among the points which Professor Wulff emphasized was the basic need for sound undergraduate teaching instead of mere research. The field of powder metallurgy was briefly covered and some of the newer courses at the Institute described.

We were delighted to have with us Ralph Hearne of Indianapolis and his son, Bill, as our guests. Young Bill expects to take his training at M.I.T. Some of the members discussed the advisability of having young men attend our meetings as a regular thing

in order to give them a better idea of what goes on at the Institute and what kind of work Institute graduates do. Among the members present were the following: J. H. Babbitt '17, F. C. Balke '14, C. E. Balleisen '34, R. K. Deutsch '40, Russell Fanning '30, B. R. Haueisen '23, L. L. Holmes '23, S. H. Hopper '33, H. C. Karcher '25, G. W. Klumpp '30, E. G. Peabody '22, A. A. Potter '03, J. L. Wayne '96, and J. B. Welch '13.

The second meeting of the fall season got under way at the Memorial Union at Purdue University on November 14. It was proposed that the Alumni in this district register with the Secretary information on families, name and address, whether or not they are married, and what business they are in. This information is to be made available only to members of our group and is not to be used for advertising purposes. The guest speaker for the evening was M. R. Graney, who was introduced by A. A. Potter, Dean of Engineering at Purdue.

The Dean traced briefly the development of the land grant colleges and noted that in the early days M.I.T. had only \$33,000 as the bulk of its finances. He went on to describe the need for technical institutes and for a technical extension program, with all the problems of adult education, the possibilities of credit courses, and so on. He emphasized the value of supplemental and auxiliary service to the professional engineer and pointed out emphatically that there is a field for those who can provide technical help without having had complete engineering training.

Dr. Graney then went on to describe the program in some detail, including the philosophy behind it and the type of men being turned out. Briefly stated, the organization of the technical extension division at Purdue University is entirely administrative. Its activities include the three following fields: (1) the freshman program, in which students who will complete their work at Purdue, are accepted in centers off the campus, the bulk of them being engineering and science candidates; (2) informal activities, or educational programs for which no credit is given — for example, a program tailored to the needs of the group in question was arranged for the foremen in an R.C.A. plant in which a motion and time study was done at Monticello, Ind.; and (3) technical institutes, the major enterprise conducted by the technical extension division. There are six centers in the state of Indiana, each with a resident staff who go to the surrounding communities and operate on a permanent basis. The three phases of work mentioned above have a total of about 2,500 students in them. The freshman students come for a semester, while those in the third group come for a term. Dr. Graney emphasized that the extension division is an administrative agency only and has nothing to do with the type of instruction given. That is organized and provided by the department in question.

The speaker pointed to the differences in the types of student looking for education during the last 50 years. For example, in 1890 the secondary schools had approximately 360,000 enrolled, while in 1940 they listed 7,100,000, a per cent increase of 1,888. In the colleges in the year 1890 approximately 160,000 were enrolled, against one and one-half million at present, an increase of only 795 per cent. Consequently, there is an unbalance in the type of training being offered, and the semiprofessional level in engineering is a wide field for work. The technical institutes of Purdue University, in their technical education program, undertake to provide a type of training in line with industrial needs. The person so trained is known as a technical aid and has a background of some theory and a great deal of practical work. He is an in-between-man, entirely practical, who aids the engineer. He corresponds to the laboratory technician or the nurse's aid.

The six curricula set up in the technical institutes are as follows: electrical, metallurgical, chemical, and mechanical engineering, building construction, and supervision and production technology. The course in mechanical engineering consists of two parts, which are graphic and mechanical and production planning. Each curriculum includes five basic subjects — mathematics, physics, chemistry, drawing, and English. The students also take personnel organization of industry and other highly specialized work in the particular field in which they find themselves. The curricula are not all offered in the same centers. The students taking this work number 1,200 now, as against 39 in 1943.

Members of the Association who were present at the meeting were as follows: J. H. Babbitt '17, F. C. Balke '14, C. E. Balleisen '34, R. C. Binder '30, W. W. Bonns '99, J. L. Bray '12, J. B. Coleman '26, B. R. Haueisen '23, L. L. Holmes '23, S. H. Hopper '33, W. E. Howland '22, H. C. Karcher '25, G. W. Klumpp '30, R. C. Mitchell '21, F. O. Nottingham '37, H. M. Oshry '35, A. A. Potter '03, E. G. Roberts '32, Y. S. Toulioukian '41, and J. L. Wayne '96. — **SAMUEL H. HOPPER '33, Secretary, University Medical Center, Department of Public Health, 1040 Michigan Street, Indianapolis 7, Ind.**

Southeastern M.I.T. Association

On November 3, the Club assembled at dinner at the Mountain Brook Country Club in Birmingham, Ala., honoring H. E. Lobdell '17, Executive Vice-president of the Alumni Association. The dinner itself was preceded by a short session in the grill of the Club, when it was found possible for even the youngest of those present to become quite well acquainted with the oldest and for Dean Lobdell to receive a very high grade on his ability to remember things they were unaware he had known about some of the Alumni during their student days — particularly those "off the record." Presiding at the dinner, George J. Fertig '24, noted that

the attendance numbered somewhat more than 20 per cent of the entire list of Alumni now residing in the state of Alabama. He also announced that, on February 15, Dr. Compton would be in Birmingham and a guest of the Club.

A very refreshing outline was given by Mr. Lobdell of the present state of affairs at the Institute. He dealt with finance, personnel, curriculum, social situations, and developments on the Faculty. Each Alumnus present was delighted to learn that under present rules never does a student have to leave the Institute by request on account of his work: he simply "disqualifies himself" for being permitted to remain.

Those present for the occasion were as follows: Douglas K. Crawford '42, James G. Creveling '25, Harold Cotter '23, James R. Cudworth '21, Douglas Elliott '24, George J. Fertig '24, Charles B. Gamble, Jr., '34, William H. Hassinger '27, J. Henry Henderson, Jr., '42, H. L. Holman, Jr., '25, Prescott Kelly '13, Laurence Luey '29, Kenneth McDonald '24, William J. Miller '22, Willard Mobley '21, John Powers, Jr., '33, Ted Randolph, Jr., '44, Donald C. Sanford '32, Amasa G. Smith '29, R. C. Stobert '12, Raymond E. Strickland, Jr., '38, F. C. Weiss '13, John H. Wood '34, John H. Zimmerman '23 of New York, and Buckley Christ '35.—JOHN W. POWERS, JR., '33, Secretary, 401 Yorkshire Drive, Birmingham 9, Ala.

M.I.T. Club of Chicago

The first meeting of the 1947-1948 season was held at the University Club on the evening of October 13. An excellent turnout of approximately 100 started the season off with a bang. Long Green '87, our eldest member, was with us as usual and spry as ever. Read more about Lon under the notes on the Class of '87.

The speaker, Harold E. Edgerton '27, gave a most interesting talk, illustrated with slides and movies, on the stopping of motion through the use of high-speed cameras synchronized with stroboscopic flashes and special devices. Past President Steinwedell '25 turned in his usual good performance as toastmaster, and Ed Farrand '21 was commended for a fine piece of work in arranging for the dinner. President Lavedan '20, with the help of John Praetz '28, has instituted a new wrinkle in Chicago this year with the issue of "Minutes," a neat, four-page report on the dinner meeting with many interesting bits of information concerning the doings of club members.

We are all anxiously awaiting our next meeting, December 8, when Admiral Cochran '20 from the Institute, will be our guest and speaker. The Club has lined up other excellent speakers to follow him, and a highly successful season is assured.—STANLEY M. HUMPHREY '28, Secretary, Booz, Allen and Hamilton, 135 South LaSalle Street, Chicago 3, Ill.

M.I.T. Club of Northern Texas

The visit of Professor B. A. Thresher '20 on November 17 and 18 provided the occasion for a meeting of the Club. Nineteen of our members gathered at the Dallas Athletic Club for dinner on the evening of November 18 and heard a very interesting account of recent activities at Technology. Professor Thresher described a number of new build-

ings now in the process of going up and some of those scheduled for construction in the near future. He related the detailed study which the Institute has given to the problem of how many students it can accommodate adequately. We were also very interested to learn of the Faculty committee which has been appointed to study the overall approach to the education of engineers and scientists.

Our President, William P. Bentley '04, was unable to be present, and J. A. Noyes '12 presided. We are looking forward to having H. E. Lobdell '17 with us in the early spring. Visits from staff members of the Institute are particularly welcome to our Club here in Dallas, any news from Tech being of interest in proportion to our distance from home base.—D. H. CLEWELL '33, Secretary, Magnolia Petroleum Company, Post Office Box 900, Dallas 1, Texas.

Detroit M.I.T. Association

The Association opened its fall and winter program on October 28 with a well-attended dinner at the quarters of the Engineering Society of Detroit in the Rackham Memorial Building. Our guest speaker was Frank Rising, chairman of the Detroit Transit Commission, former member of the National War Labor Board, and the National Wage Stabilization Board, and adviser to several government agencies during the war. Mr. Rising spoke on labor relations and what he referred to as "curbstone economics," giving his attentive audience a first-rate account of this troubled angle in the present-day industrial setup. A period for questions and answers followed the talk.

Among those present were the following: Chesley Ayers '34, L. Willis Bugbee, Jr., '21, Charles H. Burnham '22, John M. Campbell '25, John T. Cronin '17, Robert C. Doremus '14, Russell K. Dostal '46, Clarence W. Eckmann '42, Harvey S. Freeman '46, Herbert F. Green '29, Tredick K. Hine '16, Jack J. Jones '42, William P. Kalb '45, Harry C. Levine '18, Alvin A. Markus '47, Douglas B. Martin '25, Everett V. Martin '24, Milton W. Pettibone '17, Frank N. Phelps '13, Charles E. Quick '33, John D. Rumsey '33, Francis H. Rutherford '28, James M. Scofield '41, R. Gordon Spear '26, Raymond D. Stout '39, Ernest W. Upton '43, George R. Weinbrenner '40, Robert William Wright '32.—JOHN T. CRONIN '17, Secretary, 198 Monterey Avenue, Highland Park 3, Mich.

M.I.T. Club of Central Pennsylvania

The fall dinner meeting was held on the evening of November 6 at the Hotel Harrisburger in Harrisburg, Pa. After a short business meeting, our guest speaker, Major General Thomas J. Honley, Jr., was introduced by our President, Frank A. Robbins, Jr., '02. General Honley commands the Eleventh Air Force with headquarters at Harrisburg.

The General discussed the problems and aims of his command, which is charged with the defense of an eight-state area and has control of all Reserve Air Corps units within this area. General Honley pointed out that the Air Forces should be considered our first line of defense and as such must be maintained at a high level of efficiency. It is his belief that a strong armed force is an insurance against war—that although the cost is

high, it is much cheaper in the long run. Both the talk and the discussion period were enjoyed by all those attending.

The following members were present: Dean Bedford, Jr., '47, John P. Connelly '28, Farley Gannett '02, Harold K. Gold '28, Ralph E. Irwin '09, Ralph K. James '33, Stanley G. l'Esperance '30, Charles K. Miller '23, Eldor J. Mink '22, Harold Radcliff '41, Phyllis Needham Redcay '36, Frank A. Robbins, Jr., '02, Robert E. Smith '41, Harold R. Spaans '30, Breese J. Stevens '23, Percy E. Tillson '06, Edgar A. Weimer '98, Gardiner C. Wilson '15, and Samuel I. Zack '22. Robert P. Crowell '30, a member of the Philadelphia Club, and Wilmer Corson (Penn State '22) were our guests for the evening.—HAROLD R. SPAANS '30, Secretary, Bell Telephone Company of Pennsylvania, 210 Pine Street, Harrisburg, Pa.

M.I.T. Club of Florida

It was the luck of the sunny South to have H. E. Lobdell '17 down this way recently. We celebrated the occasion with a dinner at the Seminole Hotel in Jacksonville on November 6. Lobdell had a new title, but he was the same old Lobby, as he pictured to us the present and future developments at the Institute. He answered a barrage of questions from those present, who included the following: Majed A. Akel '46, Charles D. Duffy '13, Gerald M. Keith '12, Mrs. Keith (daughter of the late George C. Whipple '89), Joseph T. Lester, Jr., '45, Wallace S. Murray '42, Charles E. Richheimer '28, George P. Shingler '06, George W. Simons, Jr., '15, and Francis H. Yerkes '40. George Simons presided.

Earlier in the day, Mr. Lobdell had visited the University of Florida at Gainesville and greeted a number of old friends there. He had luncheon with the Keaths at their home, in company with Winston W. Ehrmann '34 and Earle B. Phelps '99.—GERALD M. KEITH '12, Secretary, Box 2695 University Station, Gainesville, Fla.

M.I.T. Club of South Florida

The Institute, in the person of one H. E. Lobdell '17, spent several days in our area during the middle of November. To us the visit was a most welcome and timely one. Judging from stories that our guest told, he, too, enjoyed himself. Mr. Lobdell, as practically everyone knows, now serves in the dual capacity of publisher of *The Review*, and executive vice-president of the Alumni Association. On Friday, November 14, he was the guest of Thomas Coogan '24, at a cocktail party at the latter's home. On the following evening, November 15, a club dinner was held at the Robin Hood Inn in Miami.

As guest speaker at the latter function, Mr. Lobdell was a tremendous success. From him we learned of the activities of our neighbor, the M.I.T. Club of Cuba. Then came a résumé of recent Institute activities, followed by an open-question period. This session lasted until well into the night. With facility and a most deft touch, our speaker gave his answers on present Institute financing, present registration policies as to citizens of this country and of South American nations, selection standards, placement records, and a score of other pertinent details. After approximately two hours of our

barrage, Mr. Lobdell was finally permitted to sit down, to the accompaniment of sincere applause.

Interested guests at the meeting were the fathers of three students currently at Technology. B. Howard Brown '30, introduced these men: W. W. Brown, of South Miami, whose son was the winner of a four-year Pepsi-Cola scholarship to M.I.T.; Arturo Chavez, present consul in Miami from Chile; and H. R. Corwin, of Palm Beach, father of a recent Technology graduate and of another son now attending the Institute.

Members attending, in order of class year, were the following: Stanley A. Hooker '97, Charles W. Swift '99, Fred S. Anderson '04, Frank de W. Webster '05, Russell H. Nichols '09, Rudolph W. Rieckohl '09, Alfonso G. Taylor '17, Morris N. Lipp '20, Fred E. Zurwelle '20, J. Coleman Jones '23, Clarence P. Thayer '23, Robert J. Yaffey '23, Cecil G. Young '23, Thomas P. Coogan '24, John C. Dunbar '25, Richard L. O'Donovan '27, B. Howard Brown '30, Foster Kennedy '30, Joseph J. Dysart '33, Meyer A. Baskin '34, George J. McCaughan '34, and Irving Peskoe '39. — CLARENCE P. THAYER '23, Secretary, 4212 Northwest Sixth Avenue, Miami, Fla. IRVING PESKOE '39, Review Secretary, 2852 Southwest 22d Terrace, Miami 33, Fla.

M.I.T. Club of Milwaukee

A fine turnout of 35 members attended the annual meeting at the University Club on October 17. Officers elected for the coming year are as follows: David G. Smith '31, President; Frank E. Briber, Jr., '43, Vice-president; William Hahn '42, Secretary; William Mark '43, Treasurer; Trevor Davidson '21, A. Preston Heintz '38, and Kimberly Stuart '19, directors.

By-laws for the Club, written by the retiring board of directors, were placed before the members and were unanimously approved. Plans were announced for four meetings to be held during the season. We are very fortunate in having secured Professor Edward L. Cochrane '20 as our guest for December 9.

Our guest speaker, Brooks Stevens, noted industrial designer, gave a fascinating talk on modernizing the design of a variety of products from toasters to passenger trains and busses. Mr. Stevens illustrated his talk with a series of interesting colored slides. — WILLIAM HAHN '42, Secretary, 750 North 14th Street, Milwaukee 3, Wis.

M.I.T. Club of New York

We had a grand meeting at Jake Ruppert's Brewery back in September and another enthusiastic turnout for Dean Baker in October. Now our big moment, in charge of George Dandrow '22, is the annual Compton Dinner, to be held at the Biltmore on December 9. We have a real attendance mark to shoot at, when we recall the 1945 dinner, at which we had more than 600 guests. All reports from George, however, assure us that 1947 will hold its own very nicely. By the time this comes out, the affair will be over, and since a general mailing has been made to our entire list, there isn't much I can add herein.

With his committee consisting of Sam Reynolds '22 and Bill Meuser '22, President

Rundlett '22 has been conducting some very fine investigations concerning our housing problem. Don't be surprised if they turn up one of these days with some interesting as well as promising possibilities.

Changes in our membership during October were normal. One of the greatest losses we have incurred in some years, was the passing of Jack Fruit '02, who died very suddenly on October 28. Jack had been one of our most loyal workers and was always in attendance at lunch and other affairs. He was chairman of our re-employment committee, and helped many a youngster, coming out of service, to orient himself and find the best spot for him to fit in. We shall all miss his sound judgment and good humor for many years to come. Guy Bolte '10 also passed away on September 21, and many of us will remember him and cherish his friendship.

We have been getting new members at the rate of about four or five a week. Three resignations came in from Dick Holt '24, Miles Pennybacker '23, and Charlie Roll '22. We regret that circumstances make it impractical for these men to continue their membership with us, and sincerely hope that they will be able to rejoin us in the not-too-distant future. Our membership now stands at about 415, which is slightly under our maximum number before we parted company with the Williams Club. Another news edition is in the making, and we hope to get it out to you before the first of the year. — WILLIAM W. QUARLES, Secretary, McGraw-Hill Publishing Company, 330 West 42d Street, New York 18, N. Y.

M.I.T. Club of Northern New Jersey

President Compton addressed the October meeting of the Club at the Essex House in Newark, N. J. Approximately 100 members were present. Besides an excellent talk on universal military training, he gave the local group a very fine picture of what is going on at the Institute today and the new developments to be expected in the future. He was introduced by Frank Jewett '03, who revealed a fact that very few people know, namely, that it was he who originally urged Dr. Compton to accept the presidency of M.I.T. Frank Pierson '29, President of the chapter, presided at the meeting and assured the members that there would be another speaker of unusual prominence at the next meeting, which will be in January.

Beyond the facts on universal military training which have been already published, Dr. Compton made a number of observations which clarified the picture considerably. His opinion is that the Russians may be expected to manufacture atomic bombs sometime from five to 20 years from now and that long-range guided missiles are not yet perfected. He estimated the cost of universal training at 1 1/4 billion dollars a year plus one billion dollars to get the program under way, stating that this is about two-thirds of the cost of high school training in the country, about half the weekly cost of war, and one-fifth of the money spent on tobacco and amusements annually. He also said that practically 99 per cent of the letters received by the committee during the study of universal military training were against military training, although the public opinion polls average approximately three to one in favor, thus indicating an organized

minority campaign to obstruct the setting up of this training program. He definitely conveyed the thought that such a training program is absolutely essential for the safety of the country.

David T. Houston '30 is the proud father of a baby girl, Cynthia Allison, born on September 16. — RUSSELL E. LOWE '16, Secretary, 112 Lincoln Street, East Orange, N. J.

M.I.T. Club of Philadelphia

Our annual winter meeting will be held, as usual, at the Bellevue-Stratford Hotel on Tuesday evening, January 20, at 6:30 P.M. The election of officers for the coming year will take place. At the time these notes are written, we have one of the speakers signed up. He is William L. Batt, Sr., President of Skf Industries and one of Philadelphia's outstanding industrial leaders. We expect a big turnout for this dinner meeting. Alumni and their guests are welcome.

The directory has gone to the printers and will be ready for distribution at the January dinner and by mail to all members of the Club. It will include 268 names in the main part and a few late-comers in the "Too Late to Classify" section. This is about 30 more than last year in spite of the increase in dues. We hope you can be with us on January 20 at the Bellevue. — ROBERT M. HARBECK '28, Secretary, 605 Foss Avenue, Drexel Hill, Pa. Assistant Secretaries: SAMUEL K. McCUALEY '41, 288 Copley Road, Upper Darby, Pa.; WILEY F. CORL, JR., '39, Box 358, Bryn Mawr, Pa.

M.I.T. Club of Western Pennsylvania

Our second monthly meeting for the 1947-1948 season was held at the University Club in Pittsburgh on October 20. Thirty-three members and five guests attended.

After an excellent buffet supper and short business meeting, the floor was turned over to George M. Hoffman '28, entertainment chairman, who introduced the program for the evening, which consisted of three motion pictures made available to the Club by the Allis-Chalmers Manufacturing Company. The films were "Tornado in a Box," telling the story of gas turbines; "The Magic of Steam," dealing with steam turbines; and "Metal Magic," covering the induction heating of metals. A lively discussion period followed the showing of the sound pictures, and questions were handled by George Hoffman and his guest, R. V. Lackner, representing the Allis-Chalmers Manufacturing Company.

Those present were as follows: W. C. Allen '33, H. M. Baker '30, C. T. Barker '27, E. M. Barnes '23, E. L. Chappell '24, G. I. Clark '41, E. J. Cole '44, C. N. Cresap '42, W. M. Davidson '26, D. W. Dimock '28, D. S. Fraser '28, R. T. Galbraith '46, M. M. Greer '26, H. H. Hall '14, W. C. L. Hemeon '26, G. M. Hoffman '28, D. C. Hooper '26, R. G. Lafear '19, W. M. Laird '43, Raymond Mancha '26, A. T. Mason '33, R. F. Miaskiewicz '47, G. C. Morrisette '35, E. K. Owen '41, R. N. Palmer '25, P. M. Robinson, Jr., '44, Henry Rockwood '32, E. A. Soars '21, J. L. Thistle '32, P. R. Toolin '39, and H. G. Zambell '37. — WILLIAM J. BATES '35, Secretary, 141 Woodhaven Drive, Pittsburgh 16, Pa.

M.I.T. Club of Rochester

Technology men of Rochester gathered at Mendon Ponds Park on a brisk, sunny, Saturday afternoon, September 27, for the annual meeting and election of officers. For the past several years the Rochester annual outing meetings have been reinstated, approaching in spirit but not pretentiousness the gatherings of pre-war years. Thirty-six members attended this year. Impromptu athletic events formed the afternoon program followed by a picnic supper and twilight business meeting.

The baseball game on the shady field at Hopkin's Point was frozen out early in the afternoon but was finally resumed when the players were thawed out by basking in front of the log fire with an abundance of cold beer. Other activities and business went along as planned. Even classes were the victors in this year's traditional softball game between even and odd classes; as frequently happens, the score was somewhat indefinite. No other athletic activity was in evidence except for the smaller group who concentrated upon tapping and dispensing the beer on the cabin porch and upon nursing the log fire in the cabin fireplace.

The picnic supper, prepared by a caterer, was served inside the cabin by the light of the fireplace and a few hastily secured candles. Very brief reports were heard on the year's activities — a year successful in all respects, with six well-attended meetings. The treasurer's report showed the Rochester Club finishing the year with 106 dues-paying members for 1946-1947, cash on hand \$484, and a scholarship fund of \$2,021. (Since no club scholarship has been awarded during the past two years, the opportunity has existed for building a small nest egg to carry over into the more active period of scholarship requests.)

Nominees for new officers were proposed by a committee headed by Harold E. Akerly '10, as chairman, assisted by John F. Ancona '03, Donald B. Kimball '20, Hugh McC. Shirey '22, and Clarence L. Wynd '27. Final ballots were cast by the light of dying embers and waning candles, with many members observing that as usual they were voting in the dark! Kenneth J. Mackenzie '28, superintendent of the paper mill at Kodak Park, was elected president for the coming year. Mackenzie was vice-president of the Club last year, a member of the executive committee from 1943 to 1946 and 1942 to 1944, and secretary for 1931-1932. He also serves as a member of the Club's scholarship committee. Harold H. Leary '23 and Henry R. Couch '20 were elected first and second vice-presidents, respectively. Leary is president of Leary's Cleaners and Dyers in Rochester. Couch is a supervisory staff engineer at Kodak Park. Frederick J. Kolb, Jr., '38 and Collin H. Alexander '39 were re-elected secretary and treasurer. Kolb is in the department of manufacturing experiments at Kodak Park; Alexander is a group leader in high-vacuum technique at Bausch and Lomb. Howard F. Carver '32, sales manager of the Gleason Works in Rochester, was elected to the executive committee for a three-year term. Continuing on the executive committee are James S. Bruce '39 and Frederick J. Hopkinson '20, whose terms expire in 1948 and 1949, respectively. Both are at Kodak Park, Bruce being a supervisor

in the paper service department and Hopkinson superintendent of the industrial laboratory.

The following club members were present at the annual meeting: Harold E. Akerly '10, Collin H. Alexander '39, Elmer Andrews '27, J. Cecil Aronson '22, David L. Babcock '33, Albert E. Bakker '43, Ernest L. Baxter '26, Warren A. Bishop '44, Arthur H. Bond '15, Henry R. Couch '20, C. King Crofton '22, Alfred van C. Dasburg '36, Raymond A. Dunn '43, Arthur B. Fox '33, George E. Francis, Jr., '28, Howard S. Gleason, Jr., '43, O. Glenn Goodhand '31, Alexander F. Hamilton '35, Frederick J. Hopkinson '20, Albert S. Knight '42, Frederick J. Kolb, Jr., '38, Harold H. Leary '23, William O. O'Neil '43, Ralph W. Peters '30, James H. Rial, Jr., '47, John H. Rogers '30, Gregory Smith '30, Edison B. Snow '36, Paul W. Stevens '37, Benjamin W. Steverman '31, Harold O. Stewart '09, Daniel E. Suter '38, Francis B. Thorne '27, Donald B. Webster '16, Stanley C. Wells '30, Paul B. Wesson '98.

Married students at M.I.T. are doing unusually well, Thomas K. Sherwood '24, Dean of Engineering, told the Club at a luncheon meeting on October 22 at the University Club. Performance of the married students as a group is better than anyone had predicted. Their academic records proved, Sherwood said, that a wife and one or two babies are less distracting than the social activities of bachelors.

Dean Sherwood was in Rochester to address an evening meeting of the Rochester section of the American Institute of Chemical Engineers on the subject "The Mathematical Treatment and Mistreatment of Experimental Data." Fortunately, his schedule permitted spending the noon with us, and 34 club members gathered. Dean Sherwood confined his discussion to the general status of the Institute and problems it faces in entering upon what will be postwar normal operation.

Growth of Institute enrollment from the pre-war figure of 2,000 through the wartime peaks and valleys to the present level of more than 5,000 was traced by Sherwood. Many of the Institute's problems are concerned with the enlargement of facilities to take care of the larger enrollment which is expected to be stabilized near 4,500 after the present rush has subsided. This final limit, he said, is determined by a Faculty survey as the probable maximum that foreseeable facilities will permit handling — all the while maintaining the high standard of instruction for which M.I.T. is known. Added to these problems of growth and expansion are a second group of necessary developments to keep the Institute pre-eminent in the field of scientific knowledge and instruction. Together, these two objectives demand an almost continuous program of capital expenditures.

Numerous contractual projects for research and development for the armed services and industry have made it no difficult problem for the Institute to finance current expenses. Actually, Sherwood reported, a considerable amount of such work handled by the Division of Industrial Cooperation has to be refused either because the project is not desirable or because Institute facilities are already overtaxed. This excellent operating status is experienced despite the fact that direction of

the Institute has become definitely "big business" with the annual budget now running 13 to 14 million! This is more than four times the pre-war budget, he reported, but somewhat less than half the wartime peak.

Capital expenses, however, present a different and much more perplexing problem. Funds for such purposes are sorely needed by Technology. Difficulties of obtaining such funds are aggravated by the decline in the number of large personal gifts and the obstacles to amassing sufficient tax-free funds to make such gifts possible. The most optimistic foreseeable solution requires substitution of a much larger number of smaller gifts, for the proper capital expansion of M.I.T. Details of some proposed expansions in Technology's facilities, plans for many of which were enumerated in the booklet, "M.I.T. — A New Era," were discussed by Sherwood. In particular he cited the welcome contribution of the Alumni Fund, which furnished the rest of the money needed to assure construction of the Senior House. Alumni are thus assisting in a partial solution of the Institute's serious postwar housing project.

The following club members were present for the meeting with Sherwood: Collin H. Alexander '39, John F. Ancona '03, Robert G. Bowie '38, Winton Brown '34, James S. Bruce '39, Gordon L. Calderwood '27, Allen L. Cobb '26, Robert S. Cook '21, Henry R. Couch '20, Herbert L. Dallas '25, Orrington E. Dwyer '36, Harry E. Essley '36, Edward S. Farrow '20, Reynold A. Grammer, Jr., '47, Robert M. Gould '45, Arthur S. Hamilton, Jr., '35, Thomas Hooker '40, Donald B. Kimball '20, Raymond H. Lambert '24, James K. Littwitz '42, Kenneth J. Mackenzie '28, Arnold Mackintosh, Jr., '44, Victor J. Moyes '24, Charles F. Payne '33, Ralph W. Peters '30, George A. Richter '13, William Staudenmaier '41, William H. Strain '31, Gouq-Jen Su '37, Stanley C. Welles '30, Paul B. Wesson '98, Vernon E. Whitman '22, Thomas S. Wood, Jr., '28, Clarence L. Wynd '27. — FREDERICK J. KOLB, JR., '38, Secretary, Building 14, Kodak Park, Rochester 4, N. Y.

M.I.T. Club of Schenectady

The annual dinner meeting was held on October 16 at the Mohawk Golf Club with Don Berkey '42 in charge. H. E. Lobdell '17, Executive Vice-president of the Alumni Association, was the guest speaker. The post-war Institute was the main theme of Mr. Lobdell's talk. In telling of the many changes that have been made and the building program now under way, he made the group realize again that the Institute is as much alive as ever. At the request of the group, Mr. Lobdell also discussed the functions of the local alumni groups. With a review of the history of the M.I.T. Alumni Association and its stated purposes, he showed how the local groups could best serve both themselves and the Alumni Association as a whole. After Mr. Lobdell's talk, the group kept him busy answering questions about the Institute, past and present. His store of information on Technology appeared to be inexhaustible.

Alumni attending the meeting were as follows: W. W. Aker '41, H. C. Anderson, Jr., '42, E. M. Bancker '18, C. F. Barrett, Jr., '34, D. C. Berkey '42, H. W. Bibber '20,

H. R. Brown, Jr., '43, Harold Chestnut '39, K. P. Coachman '22, J. T. Coe '42, L. H. Dee '35, S. B. Dunham '42, David Jealous '44, A. P. Kellogg '24, C. J. Koch '23, S. M. Proctor '43, R. C. Robinson '01, W. B. Rodemann '44, R. W. Stanhouse '41, A. J. Tacy '27, G. P. Tarleton '25, W. D. Vincent '39, R. K. Walker '39, Benjamin Wilbur '32, M. O. Zigler '30. — JOSEPH S. QUILL '41, Secretary, 226 Jackson Avenue, Schenectady 4, N. Y.

M.I.T. Club of the Connecticut Valley

The Club will gather at the Hotel Sheraton on Tuesday, January 20, for dinner at 6:30 and meeting at 8:00 p.m. The Western Massachusetts Engineering Society and the Western Massachusetts section of the American Society of Mechanical Engineers have been invited to join us to hear Dr. Compton's address on the subject, "Modern Applications of Atomic Energy." The assembly will be a large one as the Engineering Society usually turns out more than a hundred at every meeting, and with Dr. Compton as the attraction, there will be a capacity audience of Tech Club Alumni.

The following new members have moved into the Springfield district, and Alumni in their vicinity are requested to pay them a call and become acquainted: Henry P. Carruth '06, Granville; John C. Parker '27, 44 Bircham Street, Springfield; Arthur M. Marshall '32, in care of Huck's Transfer, 188 Liberty Street, Springfield; John B. Sbrega '33, 427 Elm Street, Holyoke; George M. Siegel '34, 67 Biltmore Street, Springfield; James J. Ryan '41, 58 Beacon Avenue, Holyoke.

We regret to announce the passing away on July 18 of Marion Lewis Lee '96 of Stony Hill Road, Springfield. Mrs. Lee took an active interest in the Club and attended meetings regularly up to six months ago. — MINOT R. EDWARDS '22, Secretary, Holyoke Heater Corporation, 54 Waltham Avenue, Springfield 9, Mass.

M.I.T. Club of Central New York

After a summer recess we resumed our meetings with a dinner and lecture at the University Club of Syracuse on October 23. Twenty members gathered to enjoy an evening of fellowship, good food, and fine entertainment. Our good friend Marshall Jennis '27, now of the Syracuse University faculty, highlighted the evening with an illustrated lecture on "Airborne Infection."

Our next meeting is scheduled for December 8, again at the University Club. Dr. Compton will be in Syracuse on that date to speak at the graduation exercises of the Carrier Institute of Business, and we hope to be able to have him as our guest for dinner. Later in the evening we shall go to the Onondaga Hotel to hear Dr. Compton's address.

Four additional meetings will be held after the December get-together. With 91 members on the mailing list we should have good support for these gatherings; so come on fellows, do your part to make the new year a success. — D. EARLE MACLEOD '38, Secretary, 211 Columbia Avenue, Syracuse 7, N. Y.

M.I.T. Association of Japan

On February 19, for the first time since the war, a group of M.I.T. men met in Tokyo, and steps were taken to reorganize the Association. The following were present: T. Furuchi '14, R. Arisaka '17, Y. Tanaka '18, K. Kurokawa '19, J. Kawai '21, K. Horuchi '23, Y. Kubota '23, T. Kasahara '24, M. Kametani '25, S. Ikebara '28, M. H. Miyuchi '29, and J. K. Minami '31. This meeting was limited to Japanese residents around Tokyo, its aim being to discuss reorganization of the Club in preparation for the general meeting to be held in the spring and to include all Tech men in the Tokyo district.

The latest list of M.I.T. Alumni serving in the Tokyo-Yokohama area with the occupational forces includes the following: Hyman Weinberg '28, Lieutenant Colonel, U.S.A., Harry C. Kelly '36, George Yamashiro '42, and Bedrich V. Hettich '43, all of the Economic and Scientific Section, General Headquarters, Supreme Commander of Allied Powers, A.P.O. 500, San Francisco, Calif.; also Turner W. Gilman '34, Major, U.S.A., Signal Section, Headquarters Eighth Army, A.P.O. 343, San Francisco, and Bernardo P. Abrera '32, Philippine Delegation on Reparations, in care of the Foreign Liaison Office, Civil Property Custodian, General Headquarters, Supreme Commander of Allied Powers, A.P.O. 500, San Francisco, Calif.

The first general meeting of the Association since 1944 was held on June 11 in Tokyo. This was also the first meeting in which members of the occupational forces participated. An election of new officers resulted in the following: Honorary President, Harry C. Kelly '36, President, Tatsuo Furuchi '14; Vice-president, Masaru Kametani '25; Secretary, John Kazuo Minami '31; and Associate Secretary, George Yamashiro '42. Professor Locke's letter of greeting to Dr. Kelly was read. The Japanese members were very much interested in our description of Technology activities and in the additions to the original structure made since they left the Institute. As is usually the case with alumni meetings, we had a very pleasant time reliving our relatively carefree days at M.I.T.

Those present were as follows: (Occupational Forces personnel) Bernardo P. Abrera '32, Bedrich V. Hettich '43, Harry C. Kelly '36, Hyman Weinberg '28, and George Yamashiro '42; (Japanese members) Ryohei Arisaka '17, Yoshinori Chatani '22, Tatsuo Furuchi '14, Yutaka Hara '33, Taichiro Hori '36, Masaru Kametani '25, Tamio Kasahara '24, Thomas Kato '37, Yoshio Kubota '23, Takanao Kuki '29, Kanesaburo Kurokawa '19, Yoshio Mikimoto '38, John Kazuo Minami '31, Shigemaro Nagahama '15, Katsuyuki Nishizaki '18, Juichiro Okada '20, Yukio Otsuki '37, Koichi Oye '30, Mimbu Sasaki '28, Shinji Togo '32, Tokujiro Uyeda '27, and three guest students, Tetsuro Honshuku, Tachu Naito, and Sakae Yagi, attending in '32, '16, and '37-'39 respectively.

The meeting on July 9 had an attendance of 20; that on August 12 had 15; and that on September 9 had 13. It was a big surprise when E. Charlton Crocker '43 gave a luncheon at the Daiichi Hotel at noon on October 23 to the officers of the Association. Honorary President Kelley, President Furui-

chi, Vice-president Kametani, and Associate Secretary Yamashiro enjoyed the occasion. Secretary Minami was out of town and unable to attend. A special room was reserved for the group, and a real Technology atmosphere prevailed. At the September meeting, Bernardo P. Abrera '32 gave an interesting talk on the various activities with which he is connected in the Philippines. For the next meeting, we planned to have a sukiyaki party at the home of Y. Mikimoto '38 for a gathering of about 25, and several oversea consultants from your country were probably to be invited. A report will be submitted later.

At the luncheon we asked Mr. Crocker to become the representative of the Association at the Institute, and he accepted the mission. He gave us a copy of the President's Report of 1946, which he happened to have with him; this will be passed about among our members, who wish to know about the Institute. Mr. Crocker gave us a brief sketch of the present situation in Cambridge, and we all enjoyed knowing these many new things about the Institute.

When Mr. Abrera was in the barber shop of the hotel, someone came in, grabbed his hand, exclaiming, "Here is a Tech man!" It was Mr. Crocker. This incident proves how the wearing of a Technology ring leads to meetings with Tech men. Neither of the undersigned having a ring, Mr. Crocker is to try to procure some for us.

The Club would very much appreciate donations of old technical papers and publications that fellow Alumni in the States do not need. As you all know, the major cities of Japan were quite heavily devastated by the air raids, and consequently, the private libraries of many of the members went up in smoke. It is desired to start a library of scientific and technical journals for the use of all club members. Any assistance will be gratefully accepted. Magazines may be sent to E. Charlton Crocker, care of A. D. Little, 30 Memorial Drive, Cambridge 42, who has volunteered to act as a local center for the receipt and forwarding of such journals. Also, if anyone has a few snapshots of the Institute to spare, please send them to the Associate Secretary. So many changes and additions have been made in the physical layout of the campus in the past few years that even those of us out here with the Occupational Forces would like to see what the old place looks like. Has the Field House been completed? Well do I recall the drive for funds! What does the housing project put up by the Institute look like? This report seems to be nothing but requests and questions. Before closing, here is the last request. If you have any old Popular Mechanics, Popular Science, Flying, or others of this type, please don't put them in the trash can — the junior editions of our Alumni out here would so much like to see them. If we may be of any assistance in locating Alumni out here for you, or if you know of any other Alumni serving here, please address the undersigned. — MASARU KAMETANI '25, Vice-president, 71 Shimizumachi, Suginamiku, Tokyo. GEORGE YAMASHIRO '42, Associate Secretary, Economic and Scientific Section, General Headquarters, Supreme Commander of Allied Powers, A.P.O. 500, San Francisco, Calif.

Washington Society of the M.I.T.

Is M.I.T. doing its part to avoid producing educated ignoramuses? Can it do more to make mentally well-rounded graduates?

Professor John E. Burchard '23 clarified our thinking on these points on November 4. The Institute has a real problem, he said in that the student's program is already full; he carries a heavier study load than at any school in the country except California Tech. Where can added broadening subjects be sandwiched in? As it is, the Institute devotes only one-sixth of the curriculum for a bachelor's degree to humanistic study. Strangely enough, as the student advances toward a master's degree, the rate falls to one-seventh, and for a Ph.D., one-tenth. Thus the Administration implies that the student graduating with the highest possible degree needs proportionately less of the humanities than his "bachelor" brother.

M.I.T. does not propose, said the speaker, to provide an amusement education, as typified by the teaching of fly-tying and mountaineering in other schools. As viewed by the Institute, music, fine arts, and similar subjects constitute amusement education, useful in enjoying life but not sufficiently contributory to engineering or science. Technology feels that the four-year course now given does not contain time enough for teaching essential engineering, to say nothing of packing in still further work in humanities. But it is not dogmatically assuming these things. A year ago President Compton appointed a Faculty committee to study carefully the whole education program at M.I.T. to determine whether or not our graduates are being prepared for leadership in their fields in the most effective way possible. The committee's studies are not restricted to humanistic considerations but cover the entire field of education. No report has yet been made, said the speaker, but there will be one within a few months. The committee's conclusions relative to humanities must take one of the following directions: (1) The present ratio is satisfactory. (2) The humanistic program is not well conceived. (3) The per cent of humanist study is inadequate. What other work should be dropped to accommodate it? (4) A longer course is required, or (5) two courses: (a) with engineering only, four years, (b) with engineering plus humanities. (6) A five-year course might be sufficient. (7) Humanities should be confined to requirements for advanced degrees as at Cal Tech.

We were reminded that the Institute cannot offer an attractive career to professors of humanities. A professor at M.I.T. might be confined to sophomore English all his life, whereas at other places he would be stimulated by dealing with mature minds in some of his teaching. This feature makes it hard for Technology to attract an outstanding faculty in humanities.

Present students, particularly G.I.'s, demand the humanities. For example, five G.I.'s approached Ted Wood of the English Department to help them in doing some guided reading — extracurricular. Ted Wood agreed to meet these five men one evening a week for this purpose. The idea caught on, and 75 men now participate. Furthermore, Technology has agreed to give credit for two years of this work. Burchard said the boys are working harder on this than on profes-

sional stuff. Professor Burchard, himself, conducts an evening seminar on mountaineering, but not for credit. Dean Bunker has still another volunteer evening group. Officially, the Institute is trying to fill the need outside of classes. Weekly lectures by eminent men outside of engineering are offered to the students. A series of displays in lobbies open the door to fine arts and other cultural subjects. Full information is available on how to get deeper into any of these subjects. Boston has rich opportunities for the exploration of almost any humanistic field known.

Professor Burchard reflected an official feeling that the new library and humanities building will do a lot to center the cultural life of the students. Proper environment for this type of learning is important.

The members of the Washington Society were convinced that although only one-sixth of the official studies at M.I.T. are humanistic, a man who wants to can find ways while in school to acquire a lot of culture. And we are sure that the President and the Faculty, aware of the problem, are attacking it effectively.

Present were: 1889: G. W. Stone; 1890: J. G. Crane; 1897: F. A. Hunnewell; 1901: W. C. Arsem; 1903: W. L. Cook; 1904: A. M. Holcombe, F. W. Milliken; 1905: O. C. Merrill, E. F. Kriegsman, J. A. Furer; 1915: A. D. Beidelman; 1916: F. P. Upton; 1917: H. M. Baxter; 1918: H. D. Manuelian; 1920: John Nolen, Jr., W. M. B. Freeman; 1921: C. F. Baish; 1923: J. E. Berla; H. L. Bond; 1924: J. D. Fitch, Felix Stapleton; 1925: L. F. Kreek, W. R. Wheeler; 1926: S. J. Cole, A. S. Heyser, M. O. Soroka; 1928: A. E. Beitzell; 1929: A. J. Perry, J. A. Pluge, N. P. Stathis; 1930: A. F. Bird, J. A. Mathews, H. W. Poole; 1932: R. W. West; 1936: S. C. Rethor, D. E. Varner; 1937: J. R. Fischel; 1939: M. L. Cutler; 1941: M. J. Block, E. F. Lawrence; 1944: Lester Simon; 1947: P. A. Portmann. — JOHN A. PLUGGE '29, Secretary, 35 Oxford Street, Chevy Chase, Md. ALBERT F. BIRD '30, Review Secretary, 5070 Temple Hills Road, Southeast, Washington 20, D.C.

Worcester County Alumni Association

The first fall dinner meeting was held in the Sheraton Hotel on October 28. About 40 members attended. W. Franklin Baxter, Jr., '34, President of the Association, served as toastmaster. The speakers were Thomas K. Sherwood '24, Dean of Engineering at M.I.T., and Professor Charles E. Locke '96, who reported on the state of affairs at the Institute.

Dean Sherwood, who was formerly assistant professor of chemical engineering at the Worcester Polytechnic Institute, discussed his work as a member of the National Defense Research Committee. One of the projects on which he worked during his association with this body, from 1940 to 1945, was the development of smoke generators. These were extensively used in landing operations in North Africa and were credited with having prevented the loss of a single ship in that operation.

Andrew B. Sherman '06, Orville B. Denison '11, and Carl H. Wilson '34 were named as a nominating committee to report at the

winter meeting. — ARTHUR E. JORJORIAN '31, Secretary, 30 Eunice Street, Worcester 6, Mass.

CLASS NOTES

1886

Professor Emeritus Arthur G. Robbins, for 52 years or more Class Secretary, died in Winchester, Mass., on October 26. As there was at the time no assistant or acting secretary to record his passing, it was not reported in the class notes. A brief notice, giving an outline of his academic career, appeared in the "Institute Gazette" section of the December Review.

Late in November, Alumni Secretary Locke '96 and Harry E. Clifford '86, Professor Emeritus at Harvard, asked the undersigned to serve as acting secretary for the immediate present. A letter has been dispatched to living members of the Class, requesting suggestions as to a permanent secretary and a few notes about yourselves.

The Boston press contained the following obituary: "Arthur Graham Robbins, professor emeritus at M.I.T. Engineering Department, where he had been both student and teacher for 50 years, died at his home, 12 Grove Street [Winchester], on Sunday, Oct. 26.

"Professor Robbins was born in Carlisle [Mass.], July 11, 1862, the son of George Heald Robbins and Mary Melvin Robbins. He had made his home in Winchester for the past 20 years and was well known to a large group of Winchester residents. He was a member of the Unitarian Church, the Twentieth Century Club of Boston, a life member of the Society of Engineers and a member of the Country Club of Belmont.

"He is survived by his wife, Stella R. Robbins; a daughter, Mrs. Clarence D. Brenner of Berkeley, Calif., and a son, James M. Robbins of Maplewood, N. J. A sister, Miss Caroline M. Robbins of Carlisle, also survives . . ." — ARTHUR T. CHASE, Acting Secretary, Island Creek, Mass.

1888

Edward S. Gould, II, died on August 6 at 4322 East Second Street, Long Beach, Calif. Gould entered with us in the fall of 1884 from Lawrence, Mass. On September 16, 1891, he married Lillian Cole. They had two daughters, Emma and Marion. Our classmate formed the partnership of Gutterson and Gould in 1890. Before then he had been with Gould, Hall and Company in Boston and later with the Union Pacific Railway Company in Boston and Omaha, Neb. Gould was a member of the Merrimack Valley Golf Club and the Bethany Commandery, Knights Templar. He is survived by his widow, who lives in Long Beach.

In October, the Andover Townsman contained the following item: "Mr. and Mrs. Ivar L. Sjöström, 84 Main Street, quietly observed their 52nd wedding anniversary. . . . The esteemed couple were married in Lawrence, October 4, 1895, . . . Mr. Sjöström is a native of Sweden and came here as a small boy. He was graduated from M.I.T. in 1888 and was a civil engineer for a number of years before entering the manufacturing business from which he is now retired. He is a life member of the American Society

of Civil Engineers. His wife, the former Monimia Ellis, was born in Lawrence. She is a member of the November Club. They have four children, Olga, Robert, Mrs. Elizabeth Thomson of Swampscott, and Ivar Sjöström, well-known organist."

The Boston Herald of December 1 lists under "New Citizens" a daughter born to Mr. and Mrs. Edwin S. Webster, Jr., on November 26 in New York City.

Your Secretary enjoys life in the summer at Chebeague Island, Maine, and during the winter at Princeton, N.J., where he attends the football games at the Palmer Stadium and meets each week with the Old Guard of Princeton, made up of retired professors, ministers, and missionaries. — BERTRAND R. T. COLLINS, Secretary, 291 Nassau Street, Princeton, N.J. SANFORD E. THOMPSON, Assistant Secretary, The Thompson and Lichtner Company, Inc., Park Square Building, Boston 16, Mass.

1890

The name of our classmate George Ellery Hale has figured in the science headlines in recent weeks in connection with the 50th anniversary of the dedication of the Yerkes Observatory on October 18, 1897, at Williams Bay, Wis. In 1892, at the Rochester meeting of the American Association for the Advancement of Science, Hale heard of two 40-inch telescope disks which were for sale. He was at that time — two years after graduation — already associate professor of astronomy at the recently established University of Chicago. On returning home, he set out to acquire these lenses and with President Harper interested Charles T. Yerkes, a traction magnate, not only in purchasing them but also in financing the construction of the telescope and establishing the Yerkes Observatory. The 40-inch was, and still is, the largest refracting telescope in the world, and it is unlikely that a larger one will be built as large reflectors offer so many superior advantages. A very distinguished gathering of astronomers was present at the celebration, including representatives of Hale's early staff. The many discoveries which have been made at the observatory during the past 50 years and the programs for future research were presented at the meeting. Hale resigned as director of the observatory in 1905 in order to carry out his plans for the establishment of an observatory on Mount Wilson, Calif. Here the 60-inch and 100-inch reflecting telescopes were constructed for sidereal research and two unique "tower telescopes" for solar work, Hale's special field of research. His crowning achievement in telescope building, however, is the giant 200-inch reflector, the construction of which was well under way at the time of his death in 1938. Work on the mirror had to be discontinued during the war, but the telescope is now nearing completion on Mount Palomar in southern California, and it is expected to be dedicated next summer. Let us hope it may be known as the "Hale Telescope."

Notice of the change of address of Bertram H. Davis from Tulsa, Okla., to Water Street, Ashland, Mass., led to an inquiry which brought information from St. Petersburg that, after 32 years as construction engineer on large oil refineries in Oklahoma, he had been retired at the age of 79. Before

that he had had varied experience in construction of roads, dams, power lines, and so on, which indicates that he is a real engineer whom we should be glad to see at class reunions and alumni dinners now that he is back near Technology.

The address of R. G. Walker Butters has been changed to 3 Maplewood Terrace, Haverhill, Mass. Mary L. W. Morse has changed her address to 1340 Kensington Avenue, Youngstown, Ohio. — GEORGE A. PACKARD, Secretary, 53 State Street, Boston 9, Mass. HARRY M. GOODWIN, Assistant Secretary, Room 3-233, M.I.T., Cambridge 39, Mass.

1892

Too late for mention in the December Review, the Secretary received the sad news of the sudden death of Herbert R. Moody on October 20, near his home in Vienna, Va. He was out shopping and collapsed as he entered a store and died within five minutes.

Moody was born in Chelsea, Mass., on November 19, 1869, and entered Technology with the Class of 1892 from the public schools of that city. A student in Course V specializing in industrial chemistry, he was graduated with us with the B.S. degree in Chemistry. Pursuing advanced study at Columbia for two years after his graduation, he received both the A.M. and Ph.D. degrees. He was an instructor in chemistry at M.I.T. and afterwards was appointed as professor of chemistry at Hobart College. After about 11 years of teaching at M.I.T. and Hobart, he received in 1905 an appointment as professor of chemistry and chemical engineering at the College of the City of New York, where he served throughout the remainder of his active career. He was made head of his department in 1922, becoming director of a department of more than 2,200 students and a staff of 60 members. He retired in 1938, as professor emeritus in chemistry.

He was a member of the American Chemical Society (serving for a time as chairman of the New York section), the London Society of Chemical Industry, the Société de Chimie Industrielle (Paris), and the Cosmos Club of Washington. He was chairman of the chemistry division of the National Research Council from 1936 to 1941. During World War I, he served as chief of the technical branch of the chemistry division of the War Industries Board. At the time of our 50th reunion, he reported that he had made 12 European trips and one to Africa, attending many European congresses and chemical meetings. He was married in 1895 to Edna Wadsworth '93, V, who survives him.

During his career, Moody became well known and esteemed throughout the country. The friendships he established are attested by Mrs. Moody's statement that letters have been received from friends from 19 states, from California to Maine, and from Florida to North Dakota, some 300 in all, with tributes which were well deserved. His classmates will always remember him for his cordiality and friendliness on the many occasions when we were privileged to get together.

The Secretary has also recently received news of the death of Dana M. Pratt at his

home in Hanson, Mass., on August 19. Pratt was a graduate in Civil Engineering and had been in active practice of the profession for many years. The Secretary is indebted to the Boston Herald for the following account of his career:

"The son of Edwin W. and Sarah Beal Pratt, he was born in Hanson in 1870, was graduated from Whitman High School, attended Thayer Academy, Braintree, and was graduated from . . . Technology. For several years, he served as a civil engineer for the firm of French and Bryant, and was believed to have been the first party chief to survey a forest area by the plane-table method. In 1902, he joined the J. H. Sullivan Company of Brighton, working through New England and New York for 20 years. Since 1920, he had conducted his own firm in Hanson. He had conducted surveys in 250 Massachusetts communities and had mapped 70,000 acres for six Plymouth county towns. He served as Hanson's water commissioner 25 years. He was a member of the Sons of Union Veterans and the Boston Society of Civil Engineers. His wife, Lucy Luther Pratt, died six months ago. He leaves a sister, Mrs. John Ibbitson of Hanson; a son, Alan L. of Rockland; a daughter, Mrs. Elizabeth G. Josselyn of Hingham; six grandchildren and one great-grandchild."

Carlson reports that he is still going strong. He spent his last birthday at Technology, sitting in a visiting committee presided over by Senator Flanders.

We also have to report that Ralph H. Sweetser has been obliged to resign as class agent on the Alumni Fund by the doctor's orders. We sincerely regret that he has to terminate the good job he has been doing as class representative on the Fund, and cordially extend to him our best wishes that with the lightening of the load of activities which he has been carrying he will fully recover his normal health. It is up to us, his classmates, to find a successor, and Henry B. Kane '24, Director of the Fund, will be pleased to receive offers and suggestions. — CHARLES E. FULLER, Secretary, Box 144, Wellesley 81, Mass.

1894

The Eastman Kodak Company has recently brought out a small memorial volume giving the highlights in the career of our distinguished classmate, Frank Lovejoy. The book bears the title "F. W. Lovejoy, The Story of a Practical Idealist." The title page also carries this statement, "Published as a memorial tribute to its long-time employee, its fourth president, and beloved friend." This modest little book of only 52 pages tells more about Lovejoy's character, personality, breadth of thinking, and devotion to his responsibilities than many a biographical volume put into six times its size. One may be sure that this compression and lack of extravagant over-praise are as much as Frank would have permitted, even if he had been willing to have the story of his life written at all. W. J. P. Cullen, who was responsible for the writing, has certainly understood the modesty and lack of self-exploitation that always characterized Frank's remarkable career as a great industrialist. A foreword by the president of the Eastman Kodak Company opens with the sentence: "Mr. Lovejoy was the finest man I have ever known — fine

in every way." In three brief paragraphs he presents a characterization of the man we knew which is so simply stated and yet so true and so genuine in its loyalty that it is deeply impressive. The ten brief sections that follow give the highlights of Lovejoy's career from his boyhood in Concord, N.H., to the "end of the road." Of greatest interest and significance to M.I.T. men everywhere is the three-page section entitled "The Man Behind 'Mr. Smith,'" that gives the real story of how Dr. Maclaurin and Mr. Eastman were brought together, with the result we all have so greatly appreciated.

Thomas G. Richards has, we hear, come back to Massachusetts to settle down in retirement, and his present address is Post Office Box 358, Duxbury. Tom has had a long and interesting career. Like several other '94 men, notably Price, Piper, and Sherman, and perhaps others, his engineering career was largely spent in the rubber business, which had a great expansion in our era, and in this field he was associated for many years with the United States Rubber Company, although for a time he was connected with General Motors as chief of the data section. His last association with United States Rubber was, so far as the Secretary knows, in the Naugatuck division of the United States Rubber Company, from which he retired in 1944. For two years thereafter he was apparently engaged in personal business and lived at Cheshire, Conn. He has more recently come to Duxbury, a town having many retired businessmen as residents, and keeps busy with research problems of personal interest. The Secretary has had a fine but brief letter and hopes to see him in Cambridge at an early time and talk over more of his engineering and business experiences, as well as to show him some of the present-day Technology.

William Reed-Hill is another of our '94 Class who has practiced his profession of architecture with success and distinction, chiefly in the neighborhood of New York. His present residence is at 420 121st Street.

As briefly noted in the November Review, the Secretary was recently the recipient of the honorary degree of Sc.D. from Lehigh University. This much appreciated, but entirely unexpected, honor was conferred on Founder's Day at the University, at the time of the graduation of students who had completed their requirements for bachelor's and master's degrees during the summer session. One other honorary degree was also conferred at the time. It is interesting to note how cross-connections in one's life can work out; as in this case, they give additional appreciation of the honor conferred. When we were graduated in '94, a dozen of us were under Thomas M. Drown's fatherly eye as head of the Department of Chemistry. A year later he became president of Lehigh for many years. Frank McKibben of our Class was for years head of the department of civil engineering there. And now one of the Secretary's former students, Basil W. Parker '33 (Ph.D. '39), is associate professor in biology at Lehigh. Other M.I.T. men who were friends of the Secretary have held professorships there, but the three named above were especially connected through personal and class ties.

James C. Kimberly, chairman of the Board of the Neenah Paper Company, has reported

his present winter address as Box 277, Tryon, N.C. Jim has for some years maintained a delightful periodicity, spending the summers at his beautiful home at Neenah, Wis., and much of the colder portion of the year at Tryon, with midwinter interludes generally at the Shoreham in Washington for lectures, music, and other diversions.

John W. Kittridge is now living at 352 Laurel Street, Hartford 5, Conn. Whether he has retired from active professional work in which he was engaged during the war was not specified in giving his address. Let us know, John. Charles Bela Hubbard, who was an engineer with the General Electric Company at Schenectady for nearly 40 years, and has spent part of his retirement in Florida, is now residing at 695 Iraniston Avenue, Bridgeport 5, Conn. From him, and also from Fred C. Baker, of 221 Bacon Street, Natick, Mass., the Secretary would be glad to hear, as it is years since news other than mere addresses has been received. George Taylor is still in business as a specialist in machine design and installation at 31 Milk Street. His home address is now Granison Road, Weston, Mass. Harry Gardner, Emeritus Professor of Architectural Design, continues to make his permanent home at 213 Hunnewell Terrace, Newton, and to spend his summers at his personalized cottage at Milton, N.H. W. V. Brown is now located at 135 East Amelia Avenue, Orlando, Fla. The Secretary urges all classmates to write as to their doings and not to be too modest.

Word was received by air mail on December 2 of the death of Anthony Maurice Robeson at the Simons Town Hospital, near Cape Town, South Africa, on November 15. With Mrs. Robeson he left England in the late summer for a stay in South Africa, where he had often been professionally engaged during his long career. They were taking an eight weeks' voyage by way of the East Coast. For four weeks of the voyage Robeson seemed to be in perfect health, then he was suddenly stricken with a severe heart attack which caused much suffering, and on landing he was taken at once to the hospital, where he died. As he was 84 years of age, there was little hope of any substantial recovery.

So ended the rich and busy life of one of our most highly regarded and widely experienced classmates, for his career was a noteworthy and very useful one. Coming to M.I.T. in 1890 after some years of mining experience in South America, and very largely self-prepared, he entered the first-year class along with youngsters several years his junior and remained for three years, taking the Course in Electrical Engineering. A serious and hardworking man, he was much liked and respected by his classmates and in the junior year was elected business manager of "Technique." At the end of the third year he left the Institute to go to South Africa as mechanical engineer and electrician with the DeBeers Consolidated Mines, Ltd., in Kimberley, after three years becoming assistant general manager for the same company. He then returned to America, spent a year in the study of mining engineering at Columbia University, and for two years thereafter was superintendent of the Alaska Mexican and Alaska United States gold mining companies at Douglas Island, Alaska. In

1900, he returned to South Africa as consulting electrical engineer to Messrs. Eckstein and Company, Johannesburg.

At one time in his career he was chief engineer of the diamond mines at Kimberley. Between 1910 and 1915, his headquarters were in London, and he was a much sought consulting engineer, especially for African mining operations. Robeson planned the first large-scale electrification of the Witwatersrand gold mining industry, which led to the establishment of the Victoria Falls and Transvaal Power Company in 1906. During World War I, he was on the staff of experts in England engaged on the problem of increasing munitions. For several years following 1920, he made his home at St. Aubin in the island of Jersey and used a business address at the Standard Bank of South Africa in London.

Although still in demand as a consultant, he later lived in partial retirement in the south of France and also for some years in Paris, not far from the home of Ray Price, with whom he had been intimately associated at Technology. It was an interesting incident that neither knew that the other was living in Paris and they met by chance while doing the morning marketing. Thereafter they met frequently. In 1938, Mr. and Mrs. Robeson took a house on the Thames at Marlow. Happening to be in London for a few days that summer, the Secretary had the good fortune to meet Robeson by pure chance while crossing Hyde Park. It was the first meeting for 40 years and the only one. In 1894, Robeson married Grace Perry, who survives him. To her the very deep sympathy of the Class is extended, for the Class has lost a loyal and distinguished member, and all who know him will feel a really personal sense of loss. — SAMUEL C. PRESCOTT, Secretary, Room 3-233, M.I.T., Cambridge 39, Mass.

1895

You must recall the old saying that "no news is good news" when you find the '95 class notes, at times, lacking personal items of interest from the members. There are quite a number of the boys living in Maine, New Hampshire, Florida, Louisiana, and the West, who are retired and somewhat isolated from one another, who somehow do not realize that the news that the hens are not laying or the crops are better this year than last do interest the other fellow.

You may want to know that your Secretary is still functioning on all "six cylinders," still interested in the management of a 30-bed hospital, scoutmaster of 32 strenuous Boy Scouts, and eating three good meals a day. Since this issue should reach you in January, it is the sincere wish of your Secretary that all our mates will have a healthy and prosperous year during 1948.

George T. McKay has changed his address to 374 Commonwealth Avenue, Boston 15. Joseph E. Walworth has gone to the Lakeside Inn, at Mount Dora, Fla. — LUTHER K. YODER, Secretary, 69 Pleasant Street, Ayer, Mass.

1896

The grist is not very heavy this month, but the Secretary has been able to gather a few items of interest regarding various classmates.

Richard Allen wrote that his father, Mark Allen, had been confined to the house but

was much better and expected to be back in the office before long. Richard said his father sent best regards to all the boys. Edgar Barker is now retired from his job as professor of textiles at Lowell Textile Institute, but he keeps busy with consulting work as textile engineer. His address now is 9 Mount Hope Street, Lowell, Mass.

Doc Coolidge has sent his report on Japan which he delivered on the air at the Science Forum broadcast on October 1. It dealt very interestingly of the trip of six scientists on an advisory scientific mission to serve General MacArthur's staff concerning plans for the reorganization of science and technology in Japan. They were flown to Tokyo by the Army Transport Command and in Japan were in the hands of the American Military Government, which put them up at the Imperial Hotel in Tokyo, provided them with a seven-car special train, and aided fully in their work. They had conferences and discussions, visited laboratories of various universities, as well as some of those of the government and of industry, including a few factories. They met with groups of scientists in the various Japanese universities. The scope of their investigation was very broad, and they met with warm friendliness and courtesy everywhere from scientists and laymen alike. Even the children invariably had bright smiles for them. They met with food shortage in Japan, which is a serious problem and is further intensified by the diminished fishing rights. They saw that some effort had been made to rebuild bombed areas in cities. Electric power is short, and the general situation did not look very promising. Coolidge was enthusiastic over the beauty of the country in Japan. For a long-term range there is excellent prospect of a brilliant future for Japanese industry and with it a higher standard of living for the general mass of Japanese people.

We are wondering whether Nathan Daniels has retired from Stone and Webster, as a recent change of address has been received giving his home as 326 Page Road, Bedford, Mass. The word from Bob Davis is that everything is going well with him, and Jack Eynon in San Diego is now back to the point where his health is excellent and his optimism has become so great for the future that he recently purchased a new car. He adds with glee that he did not pay any bonus. Myron Fuller had a pleasant drive from Massachusetts to Fort Myers in Florida, with rain on only one day. He traveled over parts of New York State which brought back pleasant memories of visits he had made in his younger days. On his trip he ran to the Savannah beaches and visited old Fort Pulaski. He also made a trip from Brunswick to St. Simon and Sea Island, and he saw the ruins of the fort built by Oglethorpe at Frederica as an outpost against the Spanish. Joe Harrington asserts that he is very busy, not only with regular coal work, but also on his little household stoker, which he is now really getting going. Incidentally, he is interested in the underground gasification of coal. He sent a reprint of his article in *Combustion*, for June, entitled "Differences in Burning Characteristics of Similar Coals." Joe undertakes to discuss what makes a fast-burning coal burn fast.

Jacobs in Burlington, Vt., has written that he and Mrs. Jacobs are in excellent health,

all the trimmings of his brick house had been painted, the garden had been raked up, and the double windows were ready to go on. It is hoped that by this time those double windows are on, because the weather reports have told of below freezing temperature and snow in Vermont. Sager writes from New York that he and Mrs. Sager are well and getting along all right, which seems to be a good indication that their summer vacation in Maine was highly beneficial. Walter Stearns in Raleigh, N.C., is apparently going to make a more or less permanent residence there, as he says he has been spending quite a bit of money on his new home on Newbern Avenue.

John Tilley says that building in New York is still unreasonably expensive and hard to do with high labor costs and scarcity of building materials. Charlie Tucker's apple crop in North Andover was not too heavy this year, so that the picking of the apples did not involve a tremendous amount of physical effort. Wayne reports a safe journey back home to Indianapolis, thus ending his automobile tour of the eastern part of the country.

Con Young had a busy time during the summer being at the beck and call of his good wife Abby as well as undertaking to do a lot of general repair work and plumbing around his Cape Cod place. He found it much cheaper and more satisfactory to do jobs himself rather than hire plumbers and laborers. He said the local Cape Cod plumber charged five bucks to send two men to make a quick survey of the job to be done and only report for further consideration. He and Abby had a very satisfactory motor trip to Florida. He is located now at 1617 Oak Street, Northeast, in St. Petersburg, only two blocks from Joe Clary, who, Con says, now looks 10 years younger than before moving to Florida after his retirement. Incidentally, Joe took Con to a local M.I.T. gathering at the Yacht Club, where Con had a good time meeting fellow Alumni and hearing a talk by H. E. Lobdell '17. However, he was almost overcome when the tax of \$3.00 was announced to cover the cost of the preliminaries. Apparently Con had not partaken of the liquid refreshments and had only nibbled at a few of the solid foods. He heard a rumor that the price of a small gin rickey was \$1.00. If that is an indication of the cost of living in Florida, perhaps a lot of us will want to remain at our homes in the North.

Charlie Trout has written that George Stratton died on November 8. Mrs. Stratton had passed away last spring, and the only survivor, as far as Charlie Trout knows, is his daughter Constance Stratton living in Washington. George was with us as a student in Course I and was graduated with the degree of S.B. as of 1896, although actually his thesis was not completed until May, 1903, when the Faculty awarded him his degree and predicated it to 1896. For three years after leaving school he was with the Metropolitan Sewerage Commission in Boston, and for the next five years he continued in Boston as junior engineer with the United States War Department. For the next quarter of a century he was assistant engineer and engineer with the United States Reclamation Service on projects in Montana. His work in recent years since 1929

has been with the Federal Airways Civil Aeronautics Authority in Washington. George was a loyal classmate, although unfortunately he seemed unable to attend reunions. — CHARLES E. LOCKE, Secretary, Room 8-109, M.I.T., Cambridge 39, Mass. JOHN A. ROCKWELL, Assistant Secretary, 24 Garden Street, Cambridge 38, Mass.

1898

The 50th reunion continues to roll. Lester advised, as of November 19, that he had received 68 "coming cards," and heard of 25 wives, sisters, or other relatives, who will also be coming. The names to be added to those listed in the November issue of *The Review* are the following: Leroy H. Byam, Walter A. Cleaveland, Alvan L. Davis, George F. Hiller, Mabel Forrest Lambert, Van Rensselaer Lansing, Walter Page, Benson B. Priest, A. Loring Swasey, Reginald S. Tobey, and C.E. A. Winslow. Keep the cards coming, '98! The members of the Class have received long before this the program for the 50th. As some may in the next few months mislay the program, it is printed herewith as a permanent record.

For our 50th reunion, to be held in Boston from June 9 to 12, 1948, accommodations will be reserved by the hotel committee. The hotel selected will be dependent upon the number of out-of-town guests. Assurances have been received that accommodations will be ample and at normal rates. Busses have been ordered by Dave Fenner, so that walking may be kept to a minimum; private cars and cabs will also be available. Ladies are invited to participate in the whole program. On Wednesday, June 9, at 9:30 A.M., we are scheduled to leave the hotel by bus and cars for Wellesley Hills, where at 10:00 A.M. a morning meeting will be held at the Babson Institute, with talks on finance, business, and the world outlook by Roger Babson and his staff, and inspection of the great map, which is the largest and most accurate in the world. At 12:00 noon, we lunch as guests of Mr. Babson. At 2:00 P.M., a class symposium will consist of ten-minute, informal talks by members of the Class on assigned topics. At 4:00 P.M., our busses will return us to the hotel, with plenty of time to rest before the 7:00 P.M. class dinner at the Algonquin Club, with C.E. A. Winslow as toastmaster and repetition, as far as possible, of toasts at undergraduate class dinners; there will probably be one distinguished guest speaker. On Thursday, June 10, at 10:00 A.M., we shall leave the hotel by bus for The Country Club in Brookline, where the Class will be guests of George T. Cottle and George W. Treat. Golfers bring your clubs. Tennis and bridge will also be available. Luncheon, at 1:00 P.M., will be in honor of President and Mrs. Compton. At 2:30 P.M., the morning exercises may be resumed, or the tired and lazy may view motion pictures by George T. Cottle. At 5:00 P.M., we leave by bus or car for the hotel. That evening will be open for individual dinners and visiting with friends. On Friday, June 11, the 1948 commencement exercises will begin at 10:00 A.M. Members of the Class will be seated on the platform with members of the Faculty and Corporation. The ladies will be assigned seats in the auditorium. At 1:00 P.M., President and Mrs. Compton will give

a luncheon to the Class. At 2:30 p.m., Mrs. George W. Treat will entertain the ladies at her home in Braintree. At 7:00 p.m. our busses will take us to Symphony Hall for the Pops at 8:30. Saturday, June 12, is Alumni Day. The hours from 10:00 a.m. to 12:00 noon will be occupied by inspection and registration at M.I.T., Cambridge, for Alumni with their wives and guests. The Faculty will assign guides to show the class members through all departments and buildings. This will be an opportunity to renew old acquaintance with members of other classes. Luncheon for Alumni and their wives will be at 12:30 p.m. in Du Pont Court at the Institute Buildings. At 2:15 p.m., we shall repair to a conference with talks by internationally known leaders on subjects to be announced later. The Alumni Dinner at 7:00 p.m. at the Hotel Statler in Boston will provide an evening of gaiety and fun, with speeches by Dr. Compton and other distinguished speakers and souvenir steins on the table. The 50-year Class are always the guests of honor and have a special table assigned to them.

Here is a program for the energetic and for the lethargic, as well as the in-betweens. If you are bursting with energy and wish to play 36 holes of golf, drive out to The Country Club early, play 18 holes in the morning, then eat a quick lunch, and play 18 holes in the afternoon. Or if you prefer tennis, play three sets in the morning, and three in the afternoon, i.e. if you can find anybody crazy enough to play with you. If, on the other hand, you are the Rip van Winkle type and wish to sleep a great deal, there is ample allowance for restful naps. You may even bowl a few strings at The Country Club to make the simile more accurate, and perhaps they will furnish a hair-growing machine so that you can grow a beard. There are also in the program many happy means.

Lester wishes to compile a complete list of the Class with addresses. Even the efficient Alumni Office cannot supply the addresses of the following: Albert Irwin Frye, Walter Gardner McConnell, Joseph Julius Moebs, and Edward Warren Ritchie. If you can furnish any information about these classmates, and especially their present addresses, write to Lester D. Gardner, 251 West 101 Street, New York 25, N.Y. Thanks!

And here's another thought. You may think of a classmate with whom you chummed around 50 years ago in old Rogers, Walker, Engineering, or the shop or the gym, whom you would like to meet again at the reunion. Perhaps his name is not included in the lists published in November or now. Write him a letter and send it to Lester, who will see that it is forwarded. There will be only one 50th!

The buildings of the Institute that '98 attended could be dropped inside the present extensive plant, and you would have to hunt to find them. Remember old Rogers and the long flights of stairs we had to climb to Freehand or the Library? Well, they have a new Rogers now with elevators. And the door is opened electrically as you approach. The corridors and rooms of the new Rogers and numerous other buildings are crowded with interesting exhibits and apparatus. Despite all this expansion, the same high spirit prevails.

Two more classmates have passed within the Unseen Temple — Dr. Frederic L. Bishop and Howard Snelling. We have no further information concerning Howard Snelling. Concerning Dr. Bishop, the Twenty-fifth Anniversary Book, published in 1923, gives the following facts: Frederic L. Bishop, S.B., Course VIII. Born 1876; married; one child. Ph.D. University of Chicago, 1905. Residence: 4367 Schenley Farms Terrace, Pittsburgh, Pa. Business: University of Pittsburgh, Pittsburgh, Pa. Dean, School of Engineering, and Professor of Physics, University of Pittsburgh. Civilian service during war: chairman, Engineering Educational Committee, Council of National Defense; educational director, Pittsburgh University Training Detachment, U.S.A., 5,000 men. Professional societies: Secretary, Society for the Promotion of Engineering Education; member and Treasurer, Highway Education Board; member, American Physical Society; fellow, American Association for the Advancement of Science; member, American Mathematical Society; member, Engineers Society of Western Pennsylvania; member, American Institute of Electrical Engineers. Social societies: Cosmos Club, Washington, D.C.; University Club, Pittsburgh; Chamber of Commerce, Pittsburgh.

The New York Times published the following notice:

"Dr. Frederic Lendall Bishop, Professor of Physics at the University of Pittsburgh since 1909, died on [October 10] at his home in suburban Fox Chapel Manor. He was 71 years old. Born in St. Johnsbury, Vt., Dr. Bishop attended the academy there, with Calvin Coolidge as a classmate. He received a Bachelor of Science degree from Technology in 1898 and a Ph.D. from the University of Chicago in 1905. Until 1925 Dr. Bishop was also dean of the School of Engineering and Mines at Pittsburgh."

Fred Bishop continued his interest in his alma mater and would certainly have been with us at the 50th.

The wanderings of the boys and girls of the Class continue. Arthur and Jean Blanchard left Brookline, Mass., early in November, en route for their chosen winter resort, Lake Alfred, Fla. Pleasant winter vacation, Arthur and Jean, and see you next April in the North again. George Cottle, who thinks no more of making a 12,000-mile trip than a Sabbath Day's journey, will be leaving at the end of December for a trip to Costa Rica. Pleasant picture weather attend you, George, as we wish to see those pictures at the 50th.

Here is a New Year's suggestion. As the Secretary does not live in the midst of you all, he is unable, like Hedda Hopper, more favorably situated, to pass on the news, unless you send it to him. Perhaps if you would write a letter to some one from whom you would like to hear it would help. Whom should you like to hear from? Many thanks to those who have sent in news so generously in the past. — EDWARD S. CHAPIN, Secretary, 463 Commercial Street, Boston 13, Mass.

1899

Your Secretary spent the month of August on vacation in the town of Fairlee, Vt., which is situated on the banks of the

Connecticut River (Query: How can one take a vacation when he is retired?)

During September, at the request of the chairman of the Vermont state board of health, your Secretary made a survey of the organization and activities of the state department of health and submitted a report, with recommendations, to the governor. Most of the time was spent in Burlington and Montpelier. Later, after returning home, it was discovered that Miles Sherrill and family had been on vacation in the latter city all that time. But never did the twain meet. That's a lost opportunity.

Changes of address: Timothy C. O'Hearn, from Cambridge to 464 Huntington Avenue, Boston; Edward W. Sibley, II, from Kenmore, N.Y., to Pownal, Maine; Edwin Bergstrom, IV, from Los Angeles, to 156 East Seventh Street, Claremont, Calif.; Edmund T. Stewart, from New Rochelle, to Rye, N.Y.; James B. Ellery, V, from 42 Dennis Street to 738 Washington Street, Annisquam, Mass.

Notice has recently been received from the Alumni Secretary's office that James S. Gill died in 1945. No details are available.

—BURT R. RICKARDS, Secretary, 381 State Street, Albany, N.Y. ARTHUR H. BROWN, Assistant Secretary, 53 State Street, Boston 9, Mass.

1902

Those of the Class who were at the reunion in June will be shocked to hear of the sudden death of Jack Fruit on October 28. Word was received through a clipping from the Newark News of October 29, sent in by the Secretary of '21, which we quote: "John C. Fruit of 6 Stewart Avenue, Nutley, an insurance underwriter for the Equitable Life Assurance Society of New York, died suddenly at his home . . . He was 68. Born in La Crosse, Wis., Mr. Fruit came East to attend . . . Technology, where he was graduated in 1902 with a degree in architectural engineering. He was a member of Delta Kappa Epsilon fraternity. For many years Mr. Fruit was a salesman with Socony-Vacuum Co. of New York and later a manager of the Canadian Electro Products Co. Early this year he completed fifteen years service with Equitable. Mr. Fruit was active in church work and in graduate activities of M.I.T. He was a member of the board of Vincent Methodist Church of Nutley, superintendent of the church school, and a member of Vincent Church Society. He was in charge of placing graduates for the M.I.T. Club of New York. He also was a member of the advisory board of the Nutley Symphony Society. Mr. Fruit leaves his wife, Mrs. Winifred S. Fruit, and a daughter, Miss Esther C. Fruit."

A letter has been received from Nat Patch '01 telling of the death on November 10 of Frank G. Lane, whom Patch knew when he was in '01 and whose friendship he had enjoyed through the many years that both had been located in Buffalo. We quote in part the notice of Lane's death as it appeared in the Buffalo News of November 12: "Mr. Lane died . . . after an illness of three years. Mr. Lane was head of the Lane Engineering Company at Franklin and Erie Sts. from 1908 until 1923. He was state representative of the Buckeye Blower Company, Columbus, Ohio, from 1925 to 1932 and was

employed four years during World War II at the Ross Heater and Manufacturing Company, 1407 West Ave. Born in Portland, Maine, he was graduated in 1902 from . . . Technology and came to Buffalo in 1904. He was an elder of Westminster Presbyterian Church and a member of Sigma Alpha Epsilon. Surviving are his wife, Mrs. Laura Sweet Lane; two sons, Kenneth B. and Richard S., and five grandchildren."

The following data regarding Archie Gardner, whose death on January 24 was reported in the November class notes, have been furnished by Dan Patch and a clipping from the Toledo Blade. Gardner entered Technology from Adelphi College and was graduated with the Class of 1902 in the Course in Naval Architecture. During World War I, he was connected with the Emergency Fleet Corporation inspection and production section of the steel ship division. Before the war he was for some time with the Amberson Dam Company. In 1919, he became chief engineer and naval architect for the A. Bentley and Sons Company of Toledo, at the Emergency Fleet Corporation shipbuilding yards at Jacksonville, Fla. Upon termination of this project he was in charge of the design and construction of a sugar plant at Green Bay, Wis., from 1920 to 1922. Upon completion of this project, he returned to Florida as the assistant district engineer of the A. Bentley and Sons Company's Jacksonville office, where he remained until 1926. He then went to Toledo as the chief mechanical engineer and continued as such until his retirement because of ill health in 1939. He leaves his wife, Agnes Kountz Gardner; son, Archie Gardner, Toledo; stepsons, Charles Dederich, Santa Monica, Calif., and William Dederich, Toledo; brother, Charles Gardner, Babylon, Long Island, N.Y. and one grandson.

Hunter reports the arrival of two grandchildren in September: Martha Smallin Kimball, born to his daughter Alice, Mrs. George E. Kimball, on the 8th, and Jonathan Armat Scott, born to his daughter, Elizabeth, Mrs. Robert L. Scott of Berkeley, Calif., on the 19th.

Robinson retired as of October first, as announced in the following notice given out by McKesson and Robbins: "J. Albert Robinson, Assistant Vice-president of McKesson and Robbins, Inc., and manager of its insurance department, which he organized in 1929, retired yesterday under the company's retirement plan after 19 years of service. Mr. Robinson, during his long association with the McKesson organization, has been prominently identified with the activities of the insurance division of the Risk Research Institute, Inc. For many years he has been chairman of the insurance committee of the National Wholesale Druggists Association. Before joining McKesson and Robbins, Mr. Robinson had spent many years in the engineering, rate-making, and underwriting branches of the fire insurance building. Mr. and Mrs. Robinson will reside at 34 McKeen Street, Brunswick, Maine."

Robbie's new home has an interesting story connected with it. Robbie got his location, dug the cellar, and then purchased a sturdy old house and had it moved onto the new foundation. It was necessary to saw the house in two to move it through the streets with their maze of power lines and tele-

phone wires, to say nothing of the transportation lines. We are told that all is going well and that it will soon be ready to occupy. Since its former location was in old times known as Chick-a-biddy Lane, the new home will be dubbed Chick-a-Biddy House.

Since writing these notes, word has been received of the death of John Albert Hutchinson, at Tiffin, Ohio, on September 14.—BURTON G. PHILBRICK, Secretary, 246 Stuart Street, Boston 16, Mass.

1904

The members of the Class still have writer's cramp and no letters have come through with news. Also, there are few '04 men who have been important enough, or crooked enough, to make the headlines. One in the first category is Guy Riddell, lately in Korea as mining adviser to the United States Military Government. These foreign trips are nothing new to Guy, who on various occasions has spent time in Russia, Australia, South America, and various other parts of the world.

Ev Hiller was recently discovered when about to get some lunch at the Grand Central Station in New York. He was just back from a convention in Atlantic City and said he was working like the devil and enjoying it. An attempt to find Ralph Williams in his office at the Metal and Thermit Company brought the information that he is again in poor health and seldom comes in to his desk.

The following item from the Manchester Union will be read with regret by many members of the Class: "Don L. Galusha, 65, a retired electrical engineer, died suddenly [on October 7] at his home on Boyd Hill. Mr. Galusha had returned from an automobile ride when he complained of feeling ill. He died shortly after. Mr. Galusha, the grandson of Jonas Galusha who served as governor of Vermont, was born in Jericho, Vt., son of Rufus and Myra (Wilson) Galusha. He attended Vermont schools and was a graduate of . . . Technology. For several years he was employed as an electrical engineer by Stone and Webster and later was associated with Dwight P. Robinson of Philadelphia. He was widely travelled and his last trip was to Russia as a consultant for Stone and Webster." Don was a regular attendant at class reunions and had a host of friends. Ed Parker represented the Class at the services, and flowers were sent in the name of the Class.

Bob Sosman, who started out as a research assistant at M.I.T. and in recent years has been in the United States Steel research laboratory, has forsaken industry to try his hand at teaching ceramics at Rutgers.—John H. Foster, head of the New Hampshire forestry department, was recently written up by the North Conway Reporter, which says, "Foster . . . is held in high esteem by foresters throughout the nation. He is an authority on his job and is one of the hardest working officials in the state government."—Phil Sweetser was in town recently and reports that his investment counseling business is expanding so much that they have opened an office at 50 Broadway, New York. His main office will remain in Philadelphia.

And now a final bit of good news. Mrs. Stevens reports that our official Secretary has

gained 25 pounds and is looking quite well.—EUGENE H. RUSSELL, Jr., 82 Devonshire Street, Boston 9, Mass. CARLE R. HAYWARD, Room 8-109, M.I.T., Cambridge 39, Mass.

1906

The following was included in a letter from Abe Sherman dated October 29: "At a meeting of the Worcester County Alumni Association, I ran into Sherley Newton of our Class. I knew him in the Institute, though not very well, and had probably never thought of him since leaving, but I spotted him right off and called him by name. He said he had retired a year ago from the Sherwin Williams paint outfit in Montreal, where he had been for some 30 years. He has now bought an old farm place in Brookfield, Mass., where he will make his home. He plans to go south this winter, somewhere in the vicinity of Clearwater or St. Petersburg. Do you remember John Fellows in our Class? He was a Dartmouth man, spending, I think, only the senior year with us. He was connected with the Stanley people in New Britain for many years, in fact, I think, ever since graduation. Mrs. Fellows and he have had an apartment next to us in Sarasota during the winter for the last three years, and we have enjoyed them very much. He died a few weeks ago, [on October 7]. . . . Our present plans call for us to go south for three months as usual on the first of the year and again stop at the Four Seasons Apartments, Sarasota."

Abe's letter was accompanied by a clipping which gave further details about Fellows. He was born in Laconia, N.H., and was graduated from Dartmouth in 1904 and from Technology in our Class with a degree in Mechanical Engineering. His entire business career was spent with the Stanley people. At the time of his retirement from active business, about a year ago, he was vice-president of the Farmington River Power Company, a subsidiary of the Stanley Works, where he had conducted hydroelectric studies. He was active in Boy Scout work and was a vestryman of Saint Mark's Episcopal Church and an honorary director of the New Britain General Hospital. He is survived by his wife, Ada Baker Fellows, a daughter, Ada Cary Fellows, and a son, William Scribner Fellows.

Thanks to Halsey Philbrick, we are able to record that Bob J. Ross who is city engineer at Hartford, Conn., has been honored recently for his 40 years of service for the city. The following record of the celebration is taken from the Hartford Times of November 1: "City Engineer Robert J. Ross was honored for his 40 years' service to the city . . . in ceremonies in the function room of the Municipal Building. Ross's service record is the longest of any public official. Mayor Allen presented Mr. Ross with a pin and also with two tickets to the Yale-Dartmouth game, in the presence of the heads of other city departments, most of his own staff in the Engineering Department, Chairman Charles A. Goodwin of the Metropolitan District, and many others. . . . Joining the Engineering Department in 1907, two years after his graduation from . . . Technology, Mr. Ross was named assistant city engineer in 1911. He became head of the department in 1937. He has also been head

of the Metropolitan District's Bureau of Public Works since the founding of the District. Mayor Allen and Mr. Goodwin highly praised Mr. Ross for his long and efficient work as an employee and head of the Engineering Department. 'Hartford,' said Mr. Goodwin, 'looks to him for the improvements for the greater city of the future.'

Mr. Ross, saying his 40 years in the city's service had convinced him that most city workers were capable and honest, credited his assistants with the success of his department. He also expressed satisfaction that the new charter recognized the department's services to the extent that it was continued as an independent organization for the service of the rest of the city government."

Classmates will be interested to know that Henry Darling has been made a vice-president of the New England Telephone and Telegraph Company. Henry has been in the telephone business ever since leaving Technology, his early career having been with the American Telephone and Telegraph Company. He came to Boston and joined the New England Company in 1923 and later became general traffic manager of this company, the position he held at the time of his recent promotion.

On November 9, the Secretary was shocked to receive the following note from Mrs. Nash, widow of Samuel A. Nash, II: "I am very sorry to say Mr. Nash passed away quite unexpectedly on Sunday morning, October 12. It was a great shock to me, as I had no idea the end was so near, also a great blessing — the end of all suffering. Sam always so thoroughly enjoyed the reunions. It was a great disappointment to him that his arthritis kept him from attending." Many classmates will recall Nash or Cupid, as we used to call him. He was a loyal Tech man and very regular in his attendance at class affairs and alumni banquets. During the last war he was a civilian inspector in the Navy Department. At the time of his death he resided in Newton Center, a suburb of Boston. — JAMES W. KIDDER, Secretary, 50 Oliver Street, Boston 7, Mass. EDWARD B. ROWE, Assistant Secretary, 11 Cushing Road, Wellesley Hills 82, Mass.

1907

Those of us who attended the class dinner in the Silver Room at Walker Memorial on the evening of November 14, will remember the occasion for a long time. For one thing, we partook of a delicious dinner prepared by the Technology dining service, enjoyed the comradeship of a group of congenial men, and listened to a most interesting talk by Henry B. Kane '24, Director of the M.I.T. Alumni Fund, on "The Wild World," illustrated by slides made from remarkable pictures that he had himself taken of birds, small animals, snakes, toads, frogs, and moths. The evening was also made memorable by the fact that O. L. Peabody, commonly called Peabo by '07 men, was stricken with a heart attack almost literally on the threshold of our dining and assembly room and died while we were holding our meeting. Peabo drove in his car from his home in Dedham and reached the main lobby of Walker Memorial, where he was found extremely ill by others of our Class when they arrived at about 6:15 p.m. A

telephone call brought a nurse quickly and soon afterward an ambulance, in which Peabo was taken to the Institute Infirmary, where doctors were awaiting his arrival. Oscar Starkweather rendered wonderful service to Peabo, his wife, and to the rest of us, inasmuch as he went to the infirmary with our classmate, telephoned to Mrs. Peabody, then drove to Dedham and took her to the infirmary, and later in the evening took her home again. Peabo died before his wife arrived at his bedside. Naturally, the knowledge of Peabo's stroke before we began to eat, and the message brought to us by Starkweather during Mr. Kane's talk that the end had come, removed all feelings of jollity from us, but possibly we were bound together more securely than usual by our common loss and sorrow. Attending the dinner were Dick Ashenden, Gene Banfield, Bill Coffin, George Crane, Tom Gould, Alexander Macomber, Bryant Nichols, Bob Rand, Phil Walker, and Stanley Wires.

Octavus Libbey Peabody was a graduate in Chemical Engineering. He spent two years of his life in the shoe business, a similar time as a salesman for Carrier air-conditioning equipment, and a short period as president of a concern dealing in lubricating oils and greases; but most of his career was devoted to chemical work with the George H. Morrill Company of Norwood, Mass., manufacturers of printing inks, which during recent years was a plant of the General Printing Ink Company. For the past few years he was retired from active business duties, partly on account of poor health. In fact, he had had a heart attack previous to the one that proved fatal. I talked on the telephone with Mrs. Peabody on the day after his death, and she said that the event was not entirely unexpected, although of course a stunning shock when it did occur. Peabo was one of our most faithful and loyal classmates. He always responded to every call for class activity, either financial or social. He was one of the four '07 men who have never missed one of our five-year reunions, the other three being Don Robbins, John Frank, and Oscar Starkweather. We shall miss him. Besides my telephone chat with Mrs. Peabody, I wrote to her on behalf of the Class and also arranged for a floral tribute from the Class for the funeral, which took place on November 17 at the home, 53 Abbott Road, Dedham, Mass. Peabo and his wife never had any children.

The address of Charles M. Hutchins is R.F.D., Duxbury, Mass. As I had not heard directly about him for many years, I asked Bill Coffin, who also lives in Duxbury, to hunt up our mate. Bill was most helpful and last October wrote me: "I located our lost classmate at his house in Marshfield near the Duxbury town line and had a pleasant chat with him. He said that he entered Technology with '06 but had to drop out a year on account of ill health and took his degree with '07. This fact, combined with many years spent in a sanatorium, has deterred him from attending class reunions. At present he seems to be in reasonably good health and is keeping busy at his home making pottery, which he sells on the premises." — I received a letter from Harry Moody in November heartily approving the idea of our holding another reunion in 1949. The let-

ter was written on letterhead, Harry L. Moody, Organization Management, 19 West 44th Street, New York 18, N.Y. — BRYANT NICHOLS, Secretary, 23 Leland Road, Whitinsville, Mass. HAROLD S. WONSON, Assistant Secretary, Commonwealth Shoe and Leather Company, Whitman, Mass.

1908

The first dinner meeting of the Class for the 1947-1948 season was held in the Silver Room in Walker Memorial, M.I.T., on Tuesday, November 18. The following were present: George Belcher, Myron Davis, Arnold Heath, W. B. Hunter, Sam Hatch, Les Ellis, Harold Gurney, Ted Joy, Linc Mayo, Bill McAuliffe, and Joe Wattles. Plans for reunion in June were discussed, and there will be more news on this later. A committee will be appointed to arrange the details.

George Belcher is now our class agent in place of Alton Cook. — We have the following changes of address to report: Jacob A. Fottler, Mazon, Ill.; James T. Gallagher, 4409-4th Road, North, Arlington, Va.; Harold P. Gurney, 1688 Beacon Street, Brookline 46, Mass.; Paul W. Norton, 285 Columbus Avenue, Boston 16, Mass. — H. LESTON CARTER, Secretary, 60 Batterymarch Street, Boston 10, Mass.

1909

Paul opens the notes for this month with some inside information on what is being done in preparation for the 40th reunion, which will be here before we know it. "Just a bit of news among ourselves — our 40th reunion will come along in 1949. I have to pinch myself to sense the fact that we have been Alumni for four decades. Already Art Shaw, I, and Henry Spencer, II, have been appointed chairmen of the festivities. Jim Critchett, XIV, who was our class president in our senior year, has already started for the reunion. For he has retired from his duties at Union Carbon and Carbide in New York and has gone with Mrs. Critchett to Orleans on the Cape, where they are making their home. Chet Dawes and your other Secretary will do their bit to look after things in Boston and in New York. And Carl Gram, X, is acting the part of president of the Class in telling us what is what. As always, the families will be at the party. In the past we have had about one hundred in attendance, and I feel that for this momentous date we shall again have a total of one hundred — maybe more! Exactly where we shall go is not sure at this writing, but we hope to go to the Cape, perhaps to the spot where other reunions have been held, depending on our dates. I can assure you that we'll have a bang-up party, and it's none too soon to put a red mark on an early week end in June two years hence! Surely we shall have someone from the Institute as our guest to lend a bit of dignity to the doings. There will also be something said rather formally about the Class of 1909 scholarship fund. You'll be getting a letter telling in detail about the plans to increase the fund. For we have a suggestion that will make it easy to subscribe to the fund and to add to the amounts already pledged. I'm sending what you read here pretty much on my own. We still have quite a bit of time before June,

1949, and if you have any ideas, tell us. Both Chet and I will be good listeners, I can assure you."

Paul mentions Jim and his retirement to Orleans, Mass., on the Cape. Jim is very modest, but we were able to persuade him to send us some copy: "The idea of retiring is of many years standing, but then the war came on, and what with War Production Board committees, metallurgical advisory boards, and then that maddest of all projects, the atom bomb activities, it wasn't possible to carry out the plans till things settled down again. As you say, I had not quite reached the compulsory retirement age, but there is such a thing as waiting too long. Then also, Uncle Sam, through his taxation system, has taken away much of the financial incentive to keep going to the very end. So it seemed that the time had come to get out of the routine of active business and do the many things that have been continuously put off till there was time to do them. Here at Orleans on Cape Cod my wife and I have settled down in an old Cape Cod-type house that we have modernized over a period of years in preparation for this move. There are a few acres of ground around it—enough to give me all I want to do in the way of outdoor activities. Then about a mile away we have a small farm, in which we take a great deal of interest but without any idea of milking the cow or being tied down to the chickens. There are quite a few people in the same circumstances as we who have retired to Orleans. One of them is Len Loomis, who was in Technology with us. That makes for a great deal of social activity. In fact, when the summer people go back home, the town's people settle down to a very active and sociable winter. Altogether so far this seems to be an ideal spot for retirement, especially as we intend to do a little long delayed traveling during the colder months."

Henry Spencer tells us: "My oldest son, Kendall (M.I.T. '43), II, is working here at the Blanchard Machine Company as a mechanical engineer, designing machine tools. My second son, David, is employed in Cambridge at another plant. My youngest son, Richard, is a junior in the Electrical Engineering Co-operative Course at M.I.T. Our family has a decided M.I.T. flavor."

And from Art Shaw: "We are all well, including four grandchildren, three of Dick's and one of Bob's. Dick has been out of the Army two years and is back with the Hartford Machine Screw Company. He has maintained his Army connection by continuing interest in the Reserve Corps, where, curiously enough, he is in command of the skeleton organization of the 301st Engineers, which was my old outfit in World War I. Bob, as you may know, is an M.D. and is still in the Army, although hoping for an early release. He is doing some very interesting work in aeromedical research at Wright Field in Dayton."

We have already reported the good work that Brad Dewey, X, is doing as a member of the Cambridge school committee. In the recent municipal election, which operates on proportional representation, Brad came first, receiving the largest number of votes, 5,979 (704 more than the quota), which has as yet been received by any candidate for the school committee. H. D. Mahoney, Assist-

ant Professor of History at the Institute was elected with 5,068 votes. Both Brad and Professor Mahoney were endorsed by the Cambridge Civic Association.

We have lately received notice that Charles Camsell, XII, President of the Canadian Institute of Mining and Metallurgy, has been appointed by the Prime Minister as a member of the Federal District Commission, Ottawa, which studies the long-range planning of the Capital City district, on both sides of the Ottawa River.

Art Shaw has recently received a letter from Art Morrill, XI, in the course of which he stated, "I am going to work on the development of municipal water supply and sewer systems in Chinese cities. Whereas formerly I was sent out by the State Department, I am now going as consultant sanitary engineer for the World Health Organization, an agency of the United Nations." Art Morrill expected to leave for China about now, where his address will be in care of the National Institute of Health, 1 Huangpu Road, Nanking, China.

We regretfully report the death of another classmate, Hugh Lofting, III, aged 62, on September 26 at his home in San Clemente, Calif. He was born in England and came to the United States at the age of 16 to study mining at the Institute. After a short engineering career in Canada, Africa, and Cuba, he came to New York to write short stories for adventure magazines. He then abandoned engineering as a career and developed into a world-known author, as the creator of the Dr. Dolittle series of children's books. Hugh took his native England as the setting, the little village of "Puddleby-in-the-Marsh" being the haunt of the doctor. The doctor learned animal language from a wise old parrot and could thus talk to various animals and become enmeshed in their problems. Just two weeks before his death he had completed two more of the books. He also wrote other books, among them being *The Story of Mrs. Tubbs*, *Porridge Poetry*, *The Twilight of Magic*, and *Victory for the Slain*. In 1912, he married Flora Small Lofting, who died in 1927. In 1928, he married Katherine Harrower, who died the same year. During World War I, he served as captain of the Irish Guards until he was wounded and invalided. Surviving are his wife, Josephine Fricker Lofting, whom he married in 1935, two sons, Colin M. and Christopher C. Lofting, and a daughter, Mrs. Elizabeth Mutrux.

PAUL M. WISWALL, Secretary, 90 Hillside Avenue, Glen Ridge, N.J. CHESTER L. DAWES, Review Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass. Assistant Secretaries: MAURICE R. SCHARFF, 285 Madison Avenue, New York 17, N.Y.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

1910

It is with sorrow that I am obliged to advise you of the passing of our classmate Robert H. Lombard on October 11. The following is his obituary notice from the Norton Company in Worcester, where he was employed: Robert Hamilton Lombard was born in Ashburnham, Mass., on December 3, 1887. He was graduated from Cushing Academy in Ashburnham in 1906, and

from Technology in 1910 with the degree of S.B. While at M.I.T., he was a research assistant in physical chemistry. He published papers with Professor Emeritus M. deKay Thompson '98 and the late Professor Arthur A. Noyes '86 under whom he worked in chemistry. He obtained his Ph.D. degree at Columbia University in 1915 in chemistry and was an instructor there. Two papers were published with Professor Alexander Smith, one dealing with phosphorous pentachloride and the other with ammonium halides.

From 1915 to 1927, he was employed as a chemist in the geophysical laboratory of the Carnegie Institution of Washington, D.C., where he conducted research on the system copper-iron-sulfur. Three papers have been published on this work, with E. T. Allen and with H. E. Merwin as co-authors. For the last 20 years, Lombard had been a research chemist in the Norton Company's research laboratories at Worcester, Mass. He made important contributions to the abrasive industry, and a number of patents, both domestic and foreign, have been granted covering his developments. Most of his researches have been connected with the vitrified bonding of grinding wheels and other abrasive products. The most important new product resulting from his work is a grinding wheel having diamonds as the abrasive grains and a new-type vitrified bond. This product is superior to resinoid bonded and metal bonded diamond wheels in that the diamonds are held more firmly and efficiently while, at the same time, a freer cutting action is obtained.

Dr. Lombard was a member of the honorary scientific societies Sigma Xi and Phi Lambda Upsilon. He was a member of the American Chemical Society, the Washington Academy of Sciences, the American Fern Society, and the Worcester Chemists' Club, and was a fellow of the American Association for the Advancement of Science. His hobbies included botany and photography, and he had a collection of fine cameras. He was a member of the First Baptist Church of Worcester. He is survived by his wife, Hazel Soule Lombard, and a 12-year old daughter, Ann.

I have had the pleasure of meeting several classmates during the past month and passing a few words with them. I see Samson Cohen quite frequently, as we pass on the way to our respective offices. Sam returned to Stone and Webster after his discharge from the Army and is in their engineering department. O. J. Crommett is extremely busy in his insurance business and still wears that very engaging smile with which we are so familiar. Harry Hale occasionally rides in the train with me mornings when his car is out of order or driving conditions are poor. Harry is in the insurance business, as he was before he entered the Army.

Bob Dillon had his picture in the Boston Traveler on October 24 with other officials of the Boston Edison Company on the occasion of the opening of their new station in Everett, Mass. Bob is chief engineer and vice-president of Boston Edison. Cliff Waldo became the grandfather of a girl born to his daughter on August 7. — HERBERT S. CLEVERDON, Secretary, 120 Tremont Street, Boston 8, Mass.

1911

Once again we had exactly two '11's at the annual "Seven Come Eleven" dinner at Walker Memorial on the seventh evening of the 11th month, for there were 22 of us present. We were particularly happy to have present two or three classmates who have not been with us for a number of years, thus adding much interest to the talk-around which followed one of Bert Bridges' always excellent dinners and this year was preceded by a personally-conducted tour of the new student night club, Pritchett Lounge, recently opened after complete renovation.

Walter Allen, XIII, is still in the leather industry — with the A. C. Lawrence Leather Company in Peabody. He and Marion (a Framingham high school classmate of ye Sec's) have one married daughter and three granddaughters; two younger daughters, both graduates of the Wheelock School, one teaching in Ticonderoga, N.Y., the other in Washington, D.C.; and a son, who was overseas five years with the Army Engineers and is now with General Electric in the jet engine development division.

E. J. Batty is still with the Lincoln Stores, makes his home in East Milton, and has one married daughter and one grandson. — His former business associate, Obie Clark, II, is still operating his Nelson Cement Stone Company in East Braintree and right now is developing to advantage a new bored-out foundation for use with precut homes. — Marshall Comstock, VI, is still with the Wagner Electric Corporation in Boston and laid claim to the youngest grandchild, born on November 8 and making the fifth grandchild in the Comstock family. His oldest son-in-law is now a state senator from Meriden, Conn., and another son-in-law is with the famous Revellers' Quartet on a concert tour.

George Cumings, VI, still a bachelor, continues in the plant engineering department of the New England Telephone and Telegraph Company in Boston and described some of the preparations just completed for the new radio-telephone line about to be opened between Boston and New York. — Dennie is still running the Gardner Chamber of Commerce, and he and Sara have two grandsons and two granddaughters now, with both their boys and their daughter now married. — We were delighted to see Sterling Dyer, II, who has been with the Boston and Maine as engineer of tests ever since 1912, and he told us quite a bit about the battle between Diesel and steam engines. He and his wife live in Belmont, and they have one married son and one grandson. The son enlisted in the Navy early in the war and came out a junior grade lieutenant and brought one submarine-chaser back from the Philippines without escort in the hectic days.

Bill Fortune, I, still lives in Roslindale and is now connected with the Channing Sanitarium staff in Wellesley. — Stan Hartshorn, X, still runs his furniture and baby carriage factory, C. H. Hartshorn, Inc., in Gardner and said his offer of a baby carriage for another class baby (not a grandchild) still stands, as announced at the 1946 thirty-five year reunion. Their daughter, Barbara, a graduate of Radcliffe and a Wave officer in the war, is taking a postgraduate course at Radcliffe, and their son, Stanford, Jr., has

transferred from M.I.T., whence he went into the service, to the University of Michigan at Ann Arbor, where he is taking the furniture course and "eating it up," according to Stan.

Jack Herlihy, II, is now in his 35th year at Boston Edison and is vice-president in charge of purchasing, stores, and services. Their daughter was married this summer, as told in the November class notes; their oldest son is married and in Chicago; their younger son, who was pretty well shot up in the war, back home with Jack and Mabel and now in good health. — Hal Jenks, VI, still with the engineering department of New England Gas and Electric Association, has a boy, out of the Navy, who was with Lockheed in Glendale, Calif., earlier this year, but is now attending Pasadena Junior College, preparing for the California Institute of Technology. Hal and his wife took a Whitcomb-arranged air trip to visit the boy this summer and were most enthusiastic about it. They are now residing at 21 Institution Avenue, Apartment 3-3, Newton Center 59.

Another "long time no see" classmate was Harold Lord, II, who is with the Hollingsworth and Whitney Company, papermakers, with two mills in Maine and one in Alabama. His boss is Gordon Glazier, VII, unable to attend this year's dinner. The Lords have three grandchildren. — Roger Loud, VI, has just completed 32 years with Boston Edison and is now district sales representative for electricity and steam. He and his wife and younger son, the latter a junior in Biology at M.I.T., continue to live in Weymouth, while their older son, who was graduated from M.I.T. in 1942 and received his Ph.D. there in 1946, is married and is a professor of mathematics at the University of Minnesota, in his first year there. — Charlie McManus, I, said he and his wife are very happy at their new home in Beverly, and he is now building a road in Methuen. He warned us that the state highway department designs their roads for 50-miles-an-hour and speeds above that on curves are definitely dangerous.

We had asked Charlie Maguire, I, who had not been with us for six years, to be speaker of the evening on account of the fine work his company — Charles A. Maguire and Associates, Providence, R.I. — and he is doing in the traffic survey now under way in Boston. Charlie first told us that his daughter, a graduate of Trinity College in Washington and the Sorbonne in Paris, France, and a WAVE lieutenant for four war years, is now a draftsman in the engineering department of the New England Telephone and Telegraph Company in Providence. They also have a son who was a lieutenant in the paratroopers during the war and was somewhat banged up but now is at Rhode Island State College studying electrical engineering.

Charlie formed his consulting firm back in 1937 and at once found that the time was excellent for their highway engineering services. They did a great deal of work for the Navy in construction at several naval bases and since the war have returned to comprehensive traffic surveys. They completed one for Metropolitan Providence and also designed the East Boston express highway. As mentioned in the November class notes, he

is now preparing a master plan for the relief of traffic congestion in Metropolitan Boston and expects to have his preliminary report ready by December first, as called for. He told us much about the "origin and destination" surveys that are made and how these are plotted on maps to get the volume of traffic to and from certain areas, as a basis for highway design. He said the Boston situation was most interesting and one of the most involved in the nation, with San Francisco, perhaps, having a bit more complicated problem. He has two other engineering concerns collaborating with him on the survey, and he said that to date the main difficulties in Boston arise not so much from the traffic from some distance away as within, say, a four-mile radius of the State House — the short hauls, so-called. A question period followed Charlie's talk.

Carl Richmond, I, is very busy now in his selling of protective service with the Boston Manufacturers Mutual Fire Insurance Company, and he and his wife are living in Winchester, where, said Carl, they recently lost "one of the best neighbors that ever lived,"

— Emeritus Professor Arthur G. Robbins '86, who taught civil engineering at the Institute for two generations. — Bog Stevens, IV, believes he has the youngest 1911 family, he and his wife having two youngsters, eight and three years of age. He is still in the design division of Stone and Webster in their Boston office, and one of his associates is a classmate, C. T. Greenleaf, II, of Woburn.

O. W. Stewart, I, as head of the inspection department of the Factory Mutuals, reported that they are covering more than 12,000 plants countrywide, and he is amazed at the increases in industrial values and new buildings everywhere. Two of the Stewarts' sons are married; one of the two younger boys is at Northeastern University and the other at Amherst College. — Ted Van Tassel, X, told of a recent trip he and Helen had made to the West Coast late last spring. They have five grandchildren. Ted is living in Cohasset and continues his consulting work in leather. Ted added that he had recently attended an '07 reunion at Newton high school with George Forristall, II, and Ed Vose, XI.

Another fellow we hadn't seen for years and years was Norman Wade, II, who is a steam heat sales division executive with the Boston Edison Company. He and his wife have two daughters, one a graduate of Denison University (that's no pun, son — it's in Granville, Ohio!), the other a Colby College graduate. The latter is married and living in Putnam, Conn.; Norman and his wife and their older daughter live in Newton Lower Falls.

Emmons Whitcomb, X, said he was very happy now in his travel association with the University Travel Company in Harvard Square, after an unfortunate connection with a Boston firm. He and Reta took a week end trip to Bermuda in late September, and he is still under contract to the Puerto Rican Government as travel adviser. His son, Joe, is married and out of the service and is now a student at Purdue University. Emmons also told us his company is agent for the new Tele-juice coin machines which dispense College Inn health drinks at a dime. — Aleck Yereance, I, completed the talk-

1912

We regret to report the death of Herbert S. Cummings on January 10, 1947.

Stuart J. Schofield died at his home in Vancouver, British Columbia, on July 23, after a long, progressive illness. Born in Gravesend, Kent, England, on September 3, 1883, he came to Canada at an early age and received his primary education at Kingston public schools and Kingston Collegiate Institute. He then entered Queen's University, where he obtained the M.A. degree in 1906 and the B.Sc. in 1908, being University medalist in that year. After graduation from Queen's he studied at Harvard University and then obtained his Ph.D. degree at Technology in 1912. Throughout the early part of his career, Dr. Schofield served with the Geological Survey of Canada. From this he was loaned to the University of British Columbia, where he initiated the course in geology. Service in World War I interrupted, but in 1920 he was back at U.B.C. as professor of structural geology, which position he held until his retirement in 1938. He was then appointed professor emeritus. For his studies in geology, Dr. Schofield was singularly gifted, and his knowledge was profound. This was clearly demonstrated in papers presented before learned societies or published in the technical press. He loved the mountains, and he understood them. He knew their structure and the reason for their being. His exposition of the formation of the "Rocky Mountain Trench," read before the Royal Society of Canada, and his theory of "Cascadia," a submerged land mass or lost continent beneath the Pacific Ocean, are examples of his geological thought and reasoning. As a consulting geologist, he had experience. He was credited with having greatly extended the life of the Britannia mine, and, by the application of scientific principles, he showed the relationship between geological data and mining practice, which combined to improve flotation results at that property. As a consultant to the Howe Sound Company, his duties took him over much of Canada and the United States, as well as Mexico. In 1923, he obtained leave of absence from the University to undertake a geological survey of Hong Kong. It was while there that he was stricken with the affliction that resulted in the continued, progressive illness which ultimately caused his death. And there passed a remarkable scientist, a great teacher, and a very perfect gentleman.

Dr. Schofield is survived by his widow, Florence (Tait) Schofield, and two daughters, Mary Lenore and Frances Louise. He leaves two brothers, Donald S. of Fort William, and Clive A. of Ottawa, one sister, Mrs. I. M. Marshall, of Ottawa, and also an aunt, Miss Elizabeth Spencer, of Ottawa.

Earl E. Ferry suffered a serious fire loss at his lumber yard in Pittsfield, Mass., last summer. A general alarm fire destroyed the block-long yard, causing a loss of approximately \$150,000.

J. Harden Pratt made the Bridgewater Independent, his home-town paper, on the occasion of his birthday. Here's the story: J. Harden Pratt's life is a striking example of a successful business career confined to one organization. The son of Lyman A. and Alice V. (Harden) Pratt, he was a student at our Bridgewater public schools and also

attended Technology, where he received the degrees of B.S. and M.S. in 1912 and 1913, respectively. On July 1, 1913, he entered the employ of the Liquid Carbonic Corporation in Chicago as a junior engineer, and he has been continuously identified with this concern. Advancement was steady and rapid, for he became general superintendent in 1918, assistant vice-president in 1924, and vice-president in 1930. He was elected to his present post as executive vice-president and director in 1941. As an illustration of the scope of Mr. Pratt's activities, it should be noted that, on December 31, 1945, the net current assets of the Liquid Carbonic Corporation were over \$3,000,000, and that he manages the affairs of this far-flung organization. He is a director of the Liberty National Bank of Chicago and is also the author of several articles pertaining to the production of carbon monoxide. Mr. Pratt was married to Priscilla A. Ryder on September 1, 1915, is the father of one son, and makes his home in Oak Park, Ill.

The Boston papers have had a great deal to say lately regarding Milton Kahn, who was recently elected president of the Associated Jewish Philanthropies. Born in Libau, Kurland, Milton arrived in this country at the age of 13 and with perseverance and determination managed to enter the Institute in a very short time. He has been active in Boston philanthropies for the past 17 years and is one of our outstanding citizens.

Parker J. Brown made an unsuccessful fight for election as mayor of Revere. As a member of the board of assessors and a holder of public office in that city for nearly 25 years, he had the better element behind him but unfortunately was not elected. Revere lost a good chief executive.

J. P. Minton, VIII, is with the field research laboratories of the Magnolia Petroleum Company located at Dallas, Texas, where he rates as director of the geophysical laboratory. After leaving the Institute, he was successively with the research laboratories of the General Electric Company; the Bell Telephone Laboratories; and the research laboratories of the Radio Corporation of America. For eight years he was a consulting radio and acoustical engineer in New York City. He is a fellow of the Institute of Radio Engineers, of the American Physical Society, and of the American Association for the Advancement of Science. He is a member of the American Geophysical Union, of the Society of Exploration Geophysicists, of the National Association of Corrosion Engineers, of the American Institute of Mining and Metallurgical Engineers, and of the Dallas Geological Society. In Dallas he is a member of the Dallas Athletic Club and Country Club. He owns and operates a farm-ranch near Dallas, spending most of his week ends there. He is a widower with three children, the oldest having just received his B.S. in geology at the University of Michigan and an M.S. in the geological sciences at the University of California. Minton has just been elected national president of the Bradley Alumni Association — FREDERICK J. SHEPARD, JR., Secretary, 125 Walnut Street, Watertown 72, Mass. LESTER M. WHITE, Assistant Secretary, 4520 Lewiston Road, Niagara Falls, N.Y.

around and said that save for his war service he has now been for 21 years with the Prudential Insurance Company's Boston office, in their investment division. He and his wife live in Wellesley, and they have one married daughter and a granddaughter.

President Stevens, II, sent a message from New Jersey, as usual, saying, "Nothing would give me more pleasure than to attend — all my youth was spent around Boston, and now I never get there any more." Others who were unable to be there, because of business trips, were Burleigh Cheney, II, Bill Coburn, I, VI; M. J. Lowenberg, VI, and Morris Omansky, V, who expressed at this way: "I regret missing the class nucleus and must be contented to be a wandering electron this year." Henry Dolliver, I, had hoped to attend but had not quite sufficiently recovered from an operation at the Mount Auburn Hospital a week before. George Forristall had to pass it up because of the arrival in town that day of his French brother-in-law. Ray Lord, VI, sent regrets and also a new mailing address: Raymond H. Lord, Post Office Box 1485, Providence, R.I. He is with the Factory Mutuals in Providence.

A nice letter came from Lloyd Cooley, X, saying he is enjoying his new work with the Great Lakes Carbon Corporation in Chicago, where he is in the home engineering department as a chemical engineer, "busy on keeping track of costs, and so forth, when there are no problems of heat transfer, sewage disposal, and 'wot stuff!'" His wife, Treva, is doing a "swell job" in her publication work at 307 North Michigan Avenue, practically next door to the G. L. C. C. offices at 333 North Michigan Avenue. Treva had the misfortune of losing her mother a bit over a year ago. — We had a nice renewal of acquaintance with Hal Robinson, I, at a dinner meeting of the Worcester County Alumni Association of M.I.T. in Worcester the last Wednesday in October. He and his son are very busy with their civil engineering office in that city.

Thanks to Cac Clarke, enterprising Secretary of the Class of 1921, a clipping from the Newark News of October 28, headed "Maplewood Democrats Mimic GOP Officials in Oldtime Street Parade," reached me. Bill Orchard, XI, is one of the leading citizens in Maplewood and is president of the Citizens' Committee, and that group was attacked by the Democratic chairman, after the parade, when he said: "As further proof that the so-called nonpartisan group is a Republican 'Trojan horse,' I offer that the president (Orchard) is the actual boss of the Republican machine in Maplewood!" Cheer up, Bill.

Just one address change: Ed Pugsley, VI, apparently has moved across the street in the Elm City, for now instead of 77 his address is 76 Everit Street, New Haven 11, Conn. — Early in November we passed the 100 per cent mark in number of subscribers in the Alumni Fund — our quota being 121, which, Marshall Comstock reminded us at the "Seven Come Eleven" Dinner, is 11 times 11 — and approached our quota of \$2,800. Keep 'em coming, mates! — ORVILLE B. DENISON, Secretary, Chamber of Commerce, Gardner, Mass. JOHN A. HERLIHY, Assistant Secretary, 588 Riverside Avenue, Medford 55, Mass.

1914

Gardner Derry has been very much in the Boston news during the past two weeks. The B. F. Sturtevant Division, a Westinghouse subsidiary, of which Gardner is vice-president and general manager, was the victim of a \$108,000 pay roll robbery. As this is being written, the police have taken some half-dozen suspects into custody, although there has as yet been no monetary recovery. But do not feel too sorry for Gardner. The pay roll was fully insured with a company which is an affiliate of an insurance company of which your Secretary is a director. Full settlement was made the day after the robbery occurred.

The first Alumni Council meeting of the winter season was held on October 27. It seemed almost like a 1914 reunion. There were present Atwood, Corney, Crocker, Horton, H. S. Wilkins, and your Secretary. Leicester Hamilton, who is a regular attendant at these meetings, was unable to be present because he was in New York bidding bon voyage to his daughter. She is married to a former Army officer who is now in Germany in the civil administration, and she is joining him. They expect to be stationed rather indefinitely at Bremerhaven.

At the annual meeting of the Associated Industries of Massachusetts held on October 23, Skip Dawson, Treasurer of E. D. Jones and Sons of Pittsfield, Mass., was elected a member of the executive committee for the ensuing year. — Howell and Mrs. Taylor of Ann Arbor, Mich., have announced the marriage on October 24 of their daughter, Celia Howell, to Harry Jarad Chapel. How Taylor and family and your Secretary and family were "refugees" from the Near East when war was declared in September, 1939, and returned to the United States in the same ship. — In the freshman class at M.I.T. is Phil, Jr., son of Philip M. Currier of the General Electric Company at Schenectady. Phil, Sr., still continues in poor health and was recently in Boston for a stay at the Lahey Clinic.

Word has been received of the death on August 24 of Fred C. Batchellor, who was a special student, associated with our Class for only a short time. His principal connection was with Dartmouth College. Although Batchellor came from Littleton, N.H., he had spent practically all his time during the last 30 years in New York City and, in recent years had been associated with the Socony-Vacuum Oil Company. As far as is known, he was not married. — HAROLD B. RICHMOND, Secretary, General Radio Company, 275 Massachusetts Avenue, Cambridge 39, Mass. CHARLES P. FISKE, Assistant Secretary, 1775 Broadway, New York 19, N.Y.

1915

You need no better example of the wonderful 1915 class spirit than our New York City class dinner at the Hotel Winthrop on November 14. Arranged by Tower Piza and Jim Tobey, who did a masterful job against tough odds, the dinner was a signal success attended by 24 men: from New York came Doug Baker, VI, Bridge Casselman, X, Fred Cook, II, Alan Dana, VI, Chauncey Durkee, II, Howard King, I, Henry Leeb, VI, Joe Livermore, I, Hank Marion, VI, Wilbur Swain, VI, Jim Tobey, VII and IX;

from Philadelphia, Larry Bailey, X, and Ed Whiting, II; from Boston, Sam Eisenberg, XIV, Azel Mack, X, Frank Murphy, VI, Johnnie O'Brien, II, Wally Pike, I, Jac Sindler, X, Henry Sheils, I, Ed Sullivan, II, and Max Woythaler, V. After having worked hard to assure the success of the dinner, Tower Piza was unable to attend. We all missed him and his inimitable humor; so the Boston contingent made a sick call on him Saturday. We don't know who benefited the more — Tower from our visit, or we from his hospitality.

After a thoroughly enjoyable dinner, Jim Tobey described some of his war experiences in Africa, Italy, France, and England. Larry Bailey exhibited his prized Powder Metallurgy Laboratory Medal, moulded from powdered silver, and gave some enlightening facts about his process for the compression molding of powdered metals. Bridge Casselman told some of his odd and humorous experiences testing shaving blades and devices for Eversharp, Inc. Doug Baker cleared up for us in an understandable, nontechnical manner this perplexing new problem of coaxial cables for television and radio. Johnnie O'Brien told of his work for the G. I. vets in the educational and vocational department of the Veterans Administration. Sam Eisenberg deplored labor and working conditions in the building industry, and Max Woythaler excited the boys with tentative plans for our 35th reunion in 1950, the New York gang agreeing that the Cape presents the most desirable location.

This was Henry Leeb's first appearance at any class dinner or reunion since graduation, and he was a most welcome guest. The years have changed him but little. Although unable to attend the dinner, Ralph Hart, X, invited us to his apartment afterward. About a dozen of us accepted and shared Ralph's gay entertainment and generous hospitality, which made a happy and festive ending for the evening. Many fellows wrote regrets — a nice gesture, showing their interest and helping us feel that we do have a splendid Class with fine, friendly feelings among all classmates.

Another delightful letter from Pellian T. C. Mar, Rear Admiral, Chinese Navy, Shanghai, China, fascinates us, coming from that distant land (He's too modest. He sent a generous check to the Alumni Fund): "It was a pleasure to receive your letter of October 4. It was only with much regret that I could not send a bigger check for the M.I.T. Alumni Fund. The difficulty of obtaining foreign exchange in this country at present may perhaps excuse me for not having taken a more active interest in the Alumni Association. Although I should like to pay another visit to the United States, I am afraid the opportunity will not be in the immediate future. My present duties in the Kiangnan Dockyard are so heavy and urgent at present that to get away is almost impossible.

"In spite of the political and economic instability in China, I am happy to say that the Kiangnan Dockyard is getting along fairly well under the existing circumstances, although a great deal more could have been achieved, had we had sufficient financial resources at our disposal. Our ability to carry on the present job of repairing a large number of merchant and naval vessels and

also building a few smaller new ones was due to the fact that the Kiangnan Dockyard was not damaged or sabotaged by the enemy upon their evacuation and that we are able to secure some shipyard surplus equipments from the Pacific areas through the coöperation of the American Naval Advisory Board as well as the Foreign Liquidation Commission at Shanghai, without which it would have been much more difficult. At one time the dockyard employed as many as 5,500 workmen and an operating staff consisting of 450 executive officers, engineers, and others. We believe the magnitude of our operation will be increased as soon as the economic situation returns to normalcy — that is to say, when raw materials, tools and equipments which we need for operation can be freely purchased and when the control on imports and exports is removed. This control has obliged us to curtail our operation to some extent.

"I am looking forward, however, to a brighter future when this dockyard may occupy a prominent place in the shipbuilding industry in Shanghai, as it is the largest in Shanghai, having three large dry docks, and also one of the largest in the East. It would certainly give me great pleasure to have the honor of a visit from you to Shanghai and the Kiangnan Dockyard and the opportunity of tendering you a welcome here."

Bill Spencer, 213 Cedarcroft Road, Baltimore, wrote as follows: "I was pleased to receive your notice of the class dinner on Friday, November 14. It happens that I have a dinner engagement of long standing in Washington and am very sorry that I cannot join you and the other 1915 men on that date. I am sure you will all have a grand time, and I'll be thinking of you. I do not know what it is you have in mind for your future class reunions. I realize that it is a large undertaking for a very short time and that the work of preparation falls on a few of the Class in Boston and New York. If it can be done, however, I am all for continuing our five-year reunions. They are a great opportunity to me for relaxation. All is going on as usual with me. Both my sons are married. The older boy, William P., is an M.D. He was discharged from the Army last June, having been stationed at Fort Dix, New Jersey, for more than a year and a half, on the final leg of his service. He is now in Virginia, where he is doing his resident work in preparation for specialization in pediatrics. He presented me with a granddaughter last May. Richard, my younger boy, is a petroleum geologist in the Texas oil fields. He is working hard on electronic controls and devices for determining oil and mineral deposits in the depths of the earth. He presented me with a grandson last March. Elizabeth, my daughter, was graduated from Mary Washington College in June and is now doing medical research work at the University of Virginia. She expects to be married in the early spring or late winter. We have some nice business and good contracts, but the Consolidated Engineering Company, like the others who try to do a proper job, is finding it continuously difficult to overcome the indifference of subcontractors, material dealers, and labor to produce worthy materials and services. Give all the fellows my best regards, and my very best to you." In answer, we

can assure you, Bill, that we'll have those five-year reunions as long as we can keep going, always trying to make each one bigger and better.

In Chicago, at the national convention of the American Textile Chemists and Colorists on October 22-25, I saw Ralph Hart and John Dalton, who is national vice-president. I had breakfast with Carl Dunn, who is very busy with his Raymond Associates on cost and production engineering.

Stan Osborn writes from Hartford, Conn., that the governor appointed him in July for six years more as health commissioner for Connecticut and that on October 14 he was made chairman of the Connecticut Citizens Committee on the "Save Heat, Save Meat, and Save the Peace National Campaign." He sounds like a busy classmate. Maybe we had better change our class slogan to "Save Azel."

A reception at the Wellesley Hills home of P. Judson and Mrs. Munn followed the four o'clock candlelight service in the First Congregational Church there recently, at which their daughter, Beverly Munn, became the bride of William E. Nessell, son of Fred E. Nessell of Washington, D.C. Dr. and Mrs. Nessell, who will make their home in Washington, D.C., have gone to Virginia for their wedding trip. The bride is a graduate of Mary Washington College of the University of Virginia and also studied physiotherapy at the Harvard Medical School. Dr. Nessell, a member of Nu Sigma Nu, was graduated from George Washington University and the medical school. — In the October 14 issue of the *New England Printer and Publisher*, is a good picture of Barbara Thomas, sitting at the table with a scholarly group of scientists and businessmen at an Advertising Club luncheon talk on atomic energy. Barbara gets around!

What sharp eyes you 1915 men have! From Los Angeles, Ray Stringfield spotted that shaving picture of Bridge Casselman. Where do they get those steaks out on the West Coast? He says: "You've probably seen this beautiful picture of Cass but will send it in case you happened to miss it. Ken and Minnie Kahn helped Lucile and and me get rid of some steaks the other evening. Ken has an interesting time as process engineer for the Lockheed Service Corporation, the subsidiary of Lockheed Aircraft that handles service work on all the planes. He also does quite a letter writing for the McGraw-Hill publications. He probably never recovered from his editorial exposure on *The Tech*. There's nothing unusual to report on my part, I'm still doing consulting work on rubber and plastics and fussing with the manufacturing troubles of my rubber concern, the Fullerton Manufacturing Company."

From his new address at 3609a McDonald Avenue, St. Louis 18, Mo., San Willis writes a swell letter, cheering us all with the good news of his recovery. If he should return here, we'd surely be glad to have him around. "At long last," he says, "after being here more than a month, I have managed to scrape together a few minutes to write you and do something about my Alumni Fund obligations. Now I am back on the job, feeling pretty well but still not more than 50 per cent of my old self. Steady improvement is noticeable, however, and I am bank-

ing on that. As regards the younger generation, the grandchild scoreboard still stands at five, but I have heard rumors of another. After five grandsons, we are naturally hoping for a girl, but that is probably asking for trouble because, if Anne has her way, she will be a thoroughly spoiled young one. There have been no changes in location: June is still in New York City; Bud, in White Plains; and Peg, in Marshfield. The development work on my patents here at the Missouri Glass Company is progressing fast now, and I should be able to have it on a self-supporting basis by next spring or summer. In that event, I shall probably cough the dust and acid fumes of St. Louis from my throat and return to New England, if I can find some means there to keep the old wolf at arm's length. As I already have one or two prospective part-time jobs in sight, I am not worrying too much about that end of it. I may even take over the agricultural potentials of Peg's place at Marshfield. It could be made to pay a fancy profit in sales of berries, fruit, and poultry products to the summer people, and like the proverbial seaman I have always had a longing to operate a farm."

Our New York classmates enthusiastically approved our plans for a capital gift to M.I.T. at our 50th reunion, and several active chaps offered to serve on Gene Place's committee. We want this spirit to spread to everyone. Jac Sindler is generously sending a set of initialed, colored "Spirits" to each man at the New York dinner. Many thanks, Jac. — I need more news for our class notes, and I am now requesting that each and everyone in the Class, and that includes the girls of 1915 who write all too seldom, write me all that is happening to her or him. I recently requested the wives of our busy mates to help us by writing the news of their spouses. The response was good, and we were pleasantly surprised. Why not do it again, ladies, and "help Azel"? — AZEL W. MACK, Secretary, 40 St. Paul Street, Brookline 46, Mass.

1916

We recently had a letter from Murray Graff which explains why he has not been able to respond sooner with news about himself. Here are some bits extracted from his letter: "I have been out of town a good part of this year and have had very little time for any extracurricular activities. I have been sales engineer in the Denver office of the General Electric for nearly 20 years now, and it has been just about the same story all the way through except it seems as though we have had much more to do since the war than during the war. Incidentally, I was in Boston during the early part of October and spent a very pleasant day with Howard Hands and his wife, driving down to Cape Cod and back."

Phil Baker sends us news from Detroit. His letter, in part, reads as follows: "Tred Hine of our Class is very busy as plant engineer in charge of layout and construction of the Dodge Plant of the Chrysler Corporation. He is doing very well, and it will not be long before he is on the retired list. He assured me that he will write a letter telling about himself either to you or to me. Cy Guething is a sales representative with his son in our area. Cy is one of our greatest

enthusiasts, and I am sure he will get some word to you. I have searched my activities for some astounding news, but there seems to be none. With all my engineering and law degrees, I still find real estate investment a very pleasant avocation. My daughter, Noel, is at Pine Manor in Wellesley, thus giving me a delightful excuse for going to Boston. With automobile production getting along as it is, we might be able to make good our boast that we will make it possible for those who come to the convention in Detroit to get an automobile, certainly by our 35th reunion anyway. The other members of our Class here in Detroit, Harrington and Foster, are pretty modest and difficult to reach, but apparently they are doing all right for themselves."

Congratulations to Robert E. Wilson, who has been awarded the doctorate of laws by Northwestern University. From Pittsfield, Mass., comes news that Walter S. Aiken has been elected vice-president of the Lee National Bank. He has been a director since 1940. He is president of the Clark-Aiken Company of East Lee, manufacturers of machinery for paper mills, which he organized in 1919 with H. Archer Clark, now retired.

In June, Richard G. Berger incorporated in Bridgeport, Conn., an organization for research and publicity on cancer. Mr. Berger worked extensively in research for the late Thomas A. Edison and the Columbia Phonograph Company. During the last 15 years, he has spent considerable time in cancer research at his home laboratory and has published several articles on cancer based on his wide experience as a research chemist.

Hovey Freeman writes from Providence that he has not happened to run into any classmates in recent weeks. Hovey is enjoying his new office facilities in the Turks Head Building. He concludes: "In September, I completed my term as commodore of the Bristol Yacht Club. For the past two or three years I have been president of the Providence Governmental Research Bureau, and our work is to keep things on a sound basis at City Hall. It is quite a job, but I really think we have accomplished a good deal."

"Then too, I have been a commissioner on the City Plan Commission. We have some rather grandiose plans for cross-town streets, superhighways, and so forth." — RALPH A. FLETCHER, Secretary, Post Office Box 71, West Chelmsford, Mass. HAROLD F. DODGE, Assistant Secretary, Bell Telephone Laboratories, 463 West Street, New York 14, N.Y.

1917

Further progress is reported on the Class History, which is being compiled under the able direction of Tom Meloy. It looks now as though the book would go to press early next year, and Leon McGrady says he has not collected enough pictures. He particularly wants snapshots of the 30th reunion and of other class gatherings, formal and informal, which include members of the Class not often photographed. So all you camera fans, get out the good pictures you have and send them along to Leon, in care of Eastman Kodak at Rochester.

The marriage of two members of the Class was reported recently. In Framingham during the middle of September, Raymond E.

McDonald was married to Julia F. Gleason. McDonald is professor of physics and mathematics at Holy Cross College. Then later in the month it was announced that Isabelle M. Alden of Athol, Mass., and Harry A. Wansker of Newtonville would be married on Thanksgiving Day. Wansker is with the United Car Fastener Corporation in Cambridge.

Frederick A. Stearns, Alfred J. Ferretti, and Emil A. Gramstorff, all of the Class of 1917 and Henry E. Richards '18 were guests of honor at a dinner on November 1 given by the Northeastern University Alumni Association for members of the faculty who have served at Northeastern for 25 years or more.

Joe Littlefield, Treasurer of the Class, announces that he is now calling on the underwriters of the Class History to send him their checks, so that the final contract may be signed with the printer. Final arrangements for the book were made at a meeting attended by Gordon Shand, Dick Loengard, Winnie McNeill, Tom Meloy, and Joe Littlefield. It will be handsomely bound and will include both individual histories and pictures. At this writing, histories have been received from 350 members of the Class, assuring real success.

Winnie McNeill was passing around cigars last August to celebrate the advent of a granddaughter, Linda Louise Knauft.—RAYMOND STEVENS, Secretary, 30 Memorial Drive, Cambridge 42, Mass. FREDERICK BERNARD, Assistant Secretary, 15 Hillside Road, Wellesley Hills 82, Mass.

1919

William F. Bennett, a commander in the Naval Reserve and administrative officer for the Boston area, received commendation for his work as organizer of the postwar Naval Reserve in Lynn and Greater Boston. The Lynn Telegram-News, for October 5, carried a story about Commander Bennett, who had been released to inactive duty and was resuming his civilian employment in the wholesale plumbing business. The commendation by M. L. Deyo, Rear Admiral U.S.N., stated in part, "... during the difficult formative stages, you have demonstrated marked proficiency in planning, organization, leadership, and tact, with a high degree of interest, initiative, and devotion to duty that has earned the respect and appreciation of civilians, officers and men ..." Commander Bennett was an Army veteran of World War I and was commissioned in the Naval Reserve in 1942. He served in the United States and in the Asiatic-Pacific theater of operations. Bennett lives at 45 Coolidge Road, West Medford, Mass.

Wayland S. Bailey, at 77 Massachusetts Avenue, Cambridge, dropped a line, saying: "It still seems mighty good to be one of the M.I.T. family. Our most interesting recent outside work has been in connection with the Massachusetts Safety Council — investigating ways and means of making window-washing a safer job." — Willis C. Brown wrote your Secretary, "I have just finished my wartime emergency appointment at this office and entered a new, permanent assignment as specialist for aviation in the division of secondary education at the United States Office of Education, Washington, D.C."

K. T. Lee, manager of the China Chemical Works in Shanghai, wrote on October 17 thanking me for the list of Class of 1919 members present at the dinner given for him in New York. His letter reads, in part, as follows: "Many a friend in America had written me commenting on the June issue of The Review, in which reference was made to our gathering. Unfortunately, I do not possess that particular issue, and if it is not too much trouble to you, I should be very much obliged if you could send me a copy. Because of the summer heat, no meeting has been held by the Tech Club in Shanghai. Now as the weather becomes cooler, meetings should be resumed. I will write you again when there is news."

Daniel H. Brown from Lebanon, N.H., wrote a long letter after having received a copy of our class book, "25 Years After." He says, "Frankly, I got a sort of eerie feeling as I followed the progress of some of my classmates, with whom I was fairly intimate. This is the first opportunity I have had of hearing of the accomplishments of our Class, and while feeling that I have done very little to add to its glory, I rejoice that so many of the boys have made a fine showing and have brought credit to themselves and to the Institute. I shall keep and treasure this memento. Here are a few facts which you may want to use in some future record. Upon graduation, I worked for a short time with the Charles Cooper Company of Newark, N.J., as a chemist. I returned to the Institute for graduate work in the fall of 1918. But my means of working my way through school had been running a 'jitney' in Lawrence, Mass., and when these were abolished, down went my hopes for further study. I worked as a chemist with the Nashua Gummmed and Coated Paper Company in Nashua, N.H., and then with the Stamsocott Company of Hopewell, Va.; next I took a job as a salesman selling leather out of Chicago and met my wife here in Lebanon, N.H., where I settled in 1921 and have been engaged in retail business ever since. My wife's name was Yetta Caplan. I have two sons, both at the University of New Hampshire — George Isaac, 24 years old, and Channing Tobey, 18. George had three years in the European theater and went back this fall for his degree. I shall make an effort to meet with the boys when the occasion arises." The Class certainly will look forward to having Dan at our 30-year reunion, and we regret that we did not have his address sooner.

Jack Fleckenstein dropped a line. He is still with the Crystal Refining Company of Carson City, Mich., as vice-president in charge of sales. Anybody getting to Detroit should look Jack up. Al Richards, assistant general sales manager of Dewey and Almy Chemical Company, had dinner with your Secretary about a month ago. Paul Sheeline dropped us a line. He is still at 31 Milk Street, Boston. A letter came from Johnny Coldwell, who is with the Leno Elastic Web Company, Inc., New Bedford, Mass. John has a son and daughter who are away at school.

Your Secretary is still eager to hear from classmates as to their ideas for our 30-year reunion. At present writing he has been placed on the 1947 committee for the din-

ner to be held in Dr. Compton's honor at the Biltmore Hotel on Tuesday, December 9. We are attempting to have a good 1919 representation.

The following changes of address have been received: Arthur C. Kenison is with the M. G. Summers Agency, 60 Federal Street, Boston 9, Mass. Ervin M. Kenison's address is Room 944, 1778 Pennsylvania Avenue, Northwest, Washington, D.C. Marion T. Lyndon has moved from Knoxville, Tenn., to 27 Crystal Street, Newton Center 59, Mass. Mason S. Noyes has moved from Cincinnati, Ohio, to 218 Fairlawn Road, Louisville, Ky. Isidor Slotnik has changed his address from Brookline to 300 Waverly Avenue, Newton 58, Mass. — EUGENE R. SMOLEY, Secretary, The Lummus Company, 420 Lexington Avenue, New York 17, N.Y. ALAN G. RICHARDS, Assistant Secretary, Dewey and Almy Chemical Company, 62 Whittemore Avenue, Cambridge 40, Mass.

1920

Through the kindness of Dick McKay '21, we have welcome word from Bill Freeman, who is deputy director of the purchasing branch of the Bureau of Federal Supply in Washington. Bill served four years in the Navy and came out as a captain. He is now living with his wife and three children at Runnymede Farm, Vienna, Va. Bill says he doesn't see many classmates and wishes any who get to Washington would get in touch with him.

David P. Brown has been appointed chief surveyor for the American Bureau of Shipping. He has been with the Bureau since 1921. He is with the ship structure committee of the Treasury Department and is a member of the Society of Naval Architects and Marine Engineers.

Dorothea Brownell Rathbone writes to tell of the arrival of her granddaughter Dorinda in Coronado, Calif. In spite of being a grandmother, Dorothea maintains her keen interest in architecture and is completing a two-year course in landscape architecture and city planning at the Rhode Island School of Design. Dorothea says she has suddenly become interested in the class statistics concerning grandparents. She thinks being one is more fun and hopes many more are in that class. Your Secretary will be glad to compile the statistics if you grandparents will come across with the information. I can't resist pointing out that he is too young to be one although his twin brother arrived at that milestone nearly three years ago.

It is sad to report the untimely death of Max Shlager on October 11. Max was president of M. R. Shlager and Company, management engineers. He leaves his wife, the former Pearl Rapoport. His home was at 1153 Beacon Street, Brookline.

Frederick A. Brooks has turned up at Davis, Calif. George Corr has left Cleveland and is now in New Haven. His address is 253 West Rock Avenue. Hank Erickson's present address is 38-12 213th Street, Bay-side, N.Y. William Johnson is living at 65 Crestmont Avenue, Philadelphia. Harry Kahn has left the Army, where he was a major, and is back in Matawan, N.J. Dave Kaplan is at 25 East 86th Street, New York City. Claude Kell is now a rear admiral and is at the David W. Taylor Model Basin in Washington. Ted Kendrick is at 2216

Monument Avenue, Richmond, Va. Harold Kepner is now in Logan, Utah. Toots Kinghorn has left Cranston, R.I., and gone to St. Petersburg, Fla. We didn't know you were that old, Toots.

Charles Klinger is in Santa Barbara, Calif. We begin to think some of our classmates are smart. Fraser Moffat has resigned his colonelship and is in New York City at 49 East 96th Street. Alexander Nikitin, who was at Copperhill, Tenn., is now with the Tennessee Corporation Research Laboratory, College Park, Ga. Fred Pennoyer, a rear admiral, is with the Bureau of Aeronautics at Wright Field, Dayton, Ohio. Tom Taber, a colonel, is in Minneapolis, where his address is 1544 East River Terrace. George I. Brown has left Chicago and is living in Cincinnati at 912 Springfield Pike. John L. Keats has left Claymont, Del., and is in Asheville, N.C. Don Williamson is with the American Liberty Oil Company, Austin, Texas.

It was with sorrow that we learned of the death on September 3 of Philip Somerby of Nahant. Phil was always one of the centers of attraction at reunions, and he will be sorely missed. — HAROLD BUGBEE, Secretary, 7 Dartmouth Street, Winchester, Mass.

1921

A welcome visitor to New York was Herbert C. DeStaebler, Vice-president of the Lambert Pharmacal Company of St. Louis, who was on his way to Cambridge to see Herb, Jr., a sophomore at Technology, represent the Class of 1950 in the Field Day football game. Young Herb was a star player in high school, and his high scholastic achievements at the Institute evidently indicate the new trend in many high schools that brains must accompany brawn, or else. Jeanne, 16, who excels at logic, and a budding artist, Stephen, who is 14, are both in high school in Kirkwood, Mo., where the DeStaeblers make their home when they aren't on some interesting trip such as the successful gold mining expedition which they staged a few years ago as a vacation masterpiece. Father Time has dealt kindly with Herb. Despite the "man of distinction" exterior, beneath the surface he is as energetic and enthusiastic as of old. Through dinner and far into the evening we covered 1921 and adjoining classes from Jack Rule, John Barriger, and Phil Coffin to the St. Louis contingent of Gene Weil and Homer Howes '20. Herb, who for years was director of purchases for Lambert, is much in demand as a speaker before groups of purchasing agents. He had just delivered a talk in his home town and was scheduled for another in Detroit shortly after his return.

Chick Kurth spent several days in New York attending meetings of the New England operating groups of the electric power utilities, held at the headquarters of the Consolidated Edison Company. He and Frieda spent an afternoon with us in Glen Ridge before their return to Boston, where Chick is assistant superintendent of the production department of the Boston Edison Company. Son Malcolm is at the Institute, and Don is at the University of Maine. Anita is married and living in California, and Barbara is studying nursing in Boston.

Chick reports that Hartwell Flemming is general engineer for the New England Gas

and Electric System. Harty's daughter will graduate from high school this year, and his son is heading for Technology. A near neighbor of the Flemmings' in Arlington, Mass., is Attilio Canzanelli, who is a professor of physiology at Tufts Medical School. With Chick at Boston Edison are Don Hathaway, relay engineer, and Murray Jones, who is power sales manager. Chick served on the committee for the Midwinter Alumni Meeting in Cambridge at which a mobile radio demonstration was featured.

Bill Loesch of the Forbes Finishes Division, Pittsburgh Plate Glass Company, Cleveland, writes that he is on his way here from a meeting of the M.I.T. Association of Cleveland at which Bat Thresher '20 was the speaker, and will deliver his notes in person. Visits from members of the Class are welcomed by your Secretary. At least telephone and give us some news for these columns.

First of the secretarial committee to report this month is Fred Kowarsky, who says: "Among those present at the October meeting of the M.I.T. Club of Northern New Jersey at which Dr. Compton spoke on universal military training were George Chutter, Asher Cohen, Sumner Hayward, Fred Kowarsky, Harold Stose, and Joseph Wenick. There appears to have been no major change in their lives since our reunion last year."

Battling 1,000 in his recently assumed secretarial duties, San Hill of E.I. du Pont de Nemours and Company, Wilmington, Del., lines out safely under the deadline with the following: "Joseph L. Gillson, who is the geologist for the Du Pont Company, was pinned down long enough between trips to tell a bit of his experiences. Graduated with us in Course XII, he taught at Technology for several years after receiving his Sc.D. there in 1923. Joe says he has become such a specialist that he knows about only two minerals, ilmenite and fluor spar, but he keeps chasing these most of the time. He was down in New Zealand and Australia early this year and since then, in Canada, Newfoundland, and various parts of this country. Joe is chairman of the industrial minerals division of the American Institute of Mining and Metallurgical Engineers. He says he has recently visited with Dick Smith and Jim Cudworth."

Class Agent Lark Randall, master of calculus, presents this interim report: "As to the Alumni Fund, in our decade group of classes from 1920 to 1929, we stand fourth with 79 per cent of contributors and first with 87 per cent of our dollar quota. One contribution has been received in the amount of \$1,000. I talked to a couple of this year's freshmen the other night. According to them, 'Tech is (still) hell,' only more so. My own boy is a freshman at Amherst, which is 'heaven' by his standards."

Writing from Philadelphia, where he is vice-president of Peirce-Phelps, Inc., Trev Peirce says: "Mrs. Peirce, my youngest boy, who is now 15, and I took a motor trip of two months through the western United States and Canada last summer. It is the fourth such trip, and we seem to enjoy each one a little bit more than the preceding ones. I had hoped to meet some Tech men during the trip but was unable to reach

several to whom I telephoned en route."

An announcement from Ace Rood reads as follows: "Everett E. Kent and Arnold C. Rood announce that they are associated in the practice of patent and trade-mark law." The offices of the firm are in the Chamber of Commerce Building, 80 Federal Street, Boston 10, Mass.

From the New York Herald Tribune we learn that a panel discussion on "Planning and Carrying Out Research" was the feature of the November meeting of the American Institute of Chemists with Frederick W. Adams, director of research of the Clark Thread Company, as one of the speakers.

Philip T. Coffin, New York district manager of the Aluminum Company of America, is active in the affairs of the Montclair Society of Engineers in the town adjoining his home in Glen Ridge, N.J. The society has more than 600 members from a residential area reported to have the highest concentration of engineers in the country. Phil serves on both the engineering education and program committees.

The Franklin T. Flahertys are making their home at 110 Guernsey Road, Swarthmore, Pa. Herbert V. Thaden is president of the Thaden Jordan Furniture Corporation of Roanoke, Va.

Colonel Asher Z. Cohen, plant manager and treasurer of the Olson Preservative and Paint Corporation, at 9-11 Delancy Street, Newark, N.J., has been assigned as commander of the 193d Composite Group, Newark, according to an announcement of the First Army headquarters.

Called to active duty in 1941, Asher was assigned as commanding officer of the 51st Ordnance Company, Delaware Ordnance Depot. Subsequently he was made commanding officer of the depot and served in this capacity until separation from the service in 1946. He has the Victory Medal, American Defense Service Medal, American Theater Campaign Medal, and the Legion of Merit. Asher has two daughters, Grace and Elaine, and makes his home in Maplewood, N.J. He is a member of the Emergency Veterans Housing Committee, the Masons, the Maplewood Civic Association, the Reserve Officers Association, and the M.I.T. Club of Northern New Jersey.

Frederick E. Haerle has been promoted to the rank of rear admiral and is stationed at the New York Naval Shipyard, Brooklyn, N.Y.

The ex-brass department, deleted from our December notes for lack of space, had by then added S. Paul Johnston, a former captain in the Navy, who is now director of the Institute of Aeronautical Sciences in New York; Ambrose L. Kerrigan, ex-lieutenant colonel, who is back in his old post with the Fitchburg Gas and Electric Light Company; Louis L. Lesser, who has dropped his lieutenant colonelcy for a Seattle, Wash., home at 4851 East 45th Street; Victor S. Phaneuf, formerly a lieutenant colonel but still our 25th reunion golf champ, who maintains engineering offices in Durham, N.H.; and Kenneth B. Skardon, 250 South Douglas Avenue, Springfield, Ohio, who was a naval lieutenant. And now in January further additions include Herbert W. Reinhard, a former captain, and Lawrence L. Willard, formerly a commander. Herb's home address is 257 Cabot Street, Newtonville 60,

Mass., and Larry resides at 289 Gannett Road, North Scituate, Mass.

Whether you have moved or are still at the same old stand, start the new year right — mail a note to your Secretary now! — CAROLE A. CLARKE, Secretary, International Standard Electric Corporation, 67 Broad Street, New York 4, N.Y.

1922

Your Secretary regrets that there were no notes in the December Review. The news well suddenly dried up, and even this month there is not much to report (in quantity, that is — not quality). The Regional Secretaries are asked to be on the lookout for news and to send it along.

Business Week of September 13 has an article entitled "Drake America Takes Over," along with a picture showing Joseph Givner, the Drake merchandiser, watching the signing of the contract in which the Mark Cross Company was taken over by Drake. Joe, now one of Drake's top men, formerly held important positions with Sears Roebuck, Sachs Fifth Avenue, and R. H. Macy. — At the luncheon of the Massachusetts Building Congress at the Boston City Club in October, George Dandrow, director of the New York Building Congress and Vice-president of Johns-Manville, was guest speaker. On George's home front, it is reported that his daughter Carol is now at the Garland School in Boston.

The New York Herald Tribune, in a dispatch from Detroit on October 6, states that David E. Lilienthal, chairman of the Atomic Energy Commission, announced a special board of consultants to speed up industrial opportunities in the atomic energy field. This new board is headed by James W. Parker, President and general manager of the Detroit Edison Company, and others on the board include Don Carpenter, Vice-president of the Remington Arms Company. Don is in distinguished company, his other associates being O. E. Buckley, President of the Bell Telephone Laboratories, Gustave Egloff, director of research of the Universal Oil Products Company of Chicago, Paul Foote, Executive Vice-president of the Gulf Research and Development Company, and Robert E. Wilson '16, chairman of the board of Standard Oil of Indiana.

Edward A. Larner, as of October 1, became the executive head of the Employers' Group Insurance Companies of Boston. As executive head, Larner, takes over the positions of United States manager and attorney of the Employers' Liability Assurance Corporation, Ltd., and president of the American Employers' Insurance Company and the Employers' Fire Insurance Company, and also continues as trustee and director of the Employers' Group Associates. Larner has been associated with the Employers' for the past 21 years.

James W. Kinnear, Jr., who was formerly assistant manager of operations of the Pittsburgh district of the Carnegie-Illinois Steel Corporation, is executive vice-president of the Firth Sterling Steel and Carbide Corporation, McKeesport, Pa., manufacturers of steel, sintered carbides, and tools. — J. F. Robinson, in a card to Clete Grover from Honolulu, reports that he has gone on a year's trip to Guam. — C. YARDLEY CHITTICK, Secretary, Heard, Smith and Tenant,

77 Franklin Street, Boston 10, Mass. WHITWORTH FERGUSON, Assistant Secretary, 333 Ellicott Street, Buffalo 3, N.Y.

1923

I have already reported in a letter to the Class, and also, I think, in these notes, that in one respect we are approaching our 25th anniversary in a very satisfactory position. It has been customary for classes to make some sort of 25-year gift to the Institute, and this is going to be possible by reason of the 25-year endowment life insurance plan which was instituted at graduation. The pressure is definitely off, and the only thing we have to consider is what we might attempt to do in addition.

Four hundred and fifty-five members of the Class took out 25-year endowment policies which at maturity would bring to the Institute approximately \$300 each, a total of about \$136,500. The value of the fund at maturity is now estimated at \$55,800, which, while short of our original goal, is a substantial amount. This gift is going to be possible because of the devotion of 146 members of the Class who have kept up their policies and a dozen or so other men who have already made some cash gift or have made a payment in lieu of what the Institute might have realized on their policies.

I know that quite a number of the men who let their policies lapse will have the urge, between now and reunion time next year, to make up to the Institute the amount which it would have realized had their policies matured. Enough men have moved on this matter without any particular prompting to suggest that a good many more are going to do the same thing; hence we may expect a final class gift fund of somewhat more than the sum quoted above.

The Class has already made one contribution out of this fund in 1940, namely, the Class of 1923 garden, which adjoins the Alumni Pool building erected in that year. This project was approved at the time by ballot of the Class. A few had some misgivings as to how practical this particular gift might be. Most of us, however, went along with the idea because the architect assured us that the garden was necessary to complete the building. I have personally had a number of occasions during the past summer to go over to the Institute, and I think any of the others who have seen the garden are quite satisfied with it. It certainly was needed to complete the building. It could be seen in regular use, particularly during the hot weather, when Cambridge is an unbearable place. I am sure that those who have used it have been grateful for the opportunity it provides of combining a summer dip and a chance to sit in the sun. It unquestionably contributes to the effective work of men at the Institute in a very practical and tangible way.

Some members of the Class will probably be considering making gifts to the Institute during the coming year to carry out some of the capital projects for new buildings and physical equipment which were outlined recently by President Compton. It would be very nice if such members would ask that any such gifts be credited to the 25-year class fund. Several classmates have a particular interest in certain of the capital

projects enumerated by President Compton. For example, John Burchard is interested in completing the Library and Humanities Center, and Bernie Proctor has mentioned the importance of the proposed Laboratory for Biology and Food Technology. They and other 1923 men at the Institute would be happy to explain the particular opportunities which are before them if certain matters of buildings and physical equipment can be financed.

The 25-year gifts from the classes have a greater importance than formerly because President Compton has explained that the Institute's current needs are in the way of capital funds rather than endowment income. In general, the Institute is more and more in need of modest help from a large number of people for capital purposes, and whatever gift we can make on the 25th anniversary will thus be particularly useful.

There are a number of items of news this month. I have a letter from José Bertino, who reports that he got safely home to Buenos Aires after a visit here early last summer. He mentions the recent joint meetings of the Buenos Aires and Montevideo clubs. It is interesting that both these clubs are headed by 1923 men this year. Luis A. Igartua is president of the M.I.T. Club of Buenos Aires and Francisco Ravecca is president of the M.I.T. Club of Uruguay.

Classmates will all sympathize with Jim Robbins on the loss of his father, Professor Arthur G. Robbins '86, in October, but most particularly Course I men, to the success and enjoyment of whose study at Technology he gave so much.

Fred Almquist, principal sanitary engineer of the Connecticut state health department had his picture in the Hartford Courant in September. At the 66th annual meeting of the New England Water Works Association in Boston, he was awarded the Dexter Brackett Memorial Medal for 1946 for a paper entitled "Problems in the Disposal of Sludge and Wash Water for Connecticut Water Filtration Plants."

Percival S. Rice of Wellesley has been appointed assistant professor of civil engineering at Tufts College school of engineering. Si had taught at the University of Illinois and was later with the Boston engineering firm of Gilbert Small. — Richard C. Kleinberger announced in November the removal of his professional engineering offices to 1 East Post Road, White Plains, N.Y. — HORATIO L. BOND, Secretary, National Fire Protection Association, 60 Batterymarch, Boston 10, Mass. HOWARD F. RUSSELL, Assistant Secretary, Improved Risk Mutuals, 60 John Street, New York 7, N.Y.

1924

Your correspondent from New York has fallen down on his job miserably but will try to get straightened out in the near future. I haven't even had time to assist George Parker on the committee for our 25th reunion or to answer his letters, but will do so at an early date and try to give him suitable reason for my apparent lack of interest. I was in Providence several weeks ago and tried to find Frank Barrett but without success. Cy Duevel is struggling along in grand style, trying to get the promotion rolling, and I hope each of you received the letter which was sent out recently, giving the first

outline of our plans to raise funds for the class gift and get-together in 1949. There will be much more coming along, and I think you are going to approve our efforts pretty much, by the time they are all out on the table.

Here in New York we have been doing much talking about getting together for a luncheon, but that, too, has had to take a back seat. We shall have class tables set aside for the Compton Dinner at the Biltmore on December 9, and I hope we shall make the best showing of any class. Two years ago, I think we had two tables, seating about 25 members or more. This year, let's make it not less than four tables, for we have more than 60 classmates right here in our midst. — FRANCIS A. BARRETT, General Secretary, 234 Washington Street, Providence, R.I. WILLIAM W. QUARLES, Assistant Secretary, McGraw-Hill Publishing Company, 330 West 42d Street, New York 18, N.Y.

1926

The Secretary is interested to discover how many sons and daughters of 1926 men are now going to school in the Boston area. He already knows that Bill Lowell, John Wilbur, Elton Staples, Bob Dean, Ted Mangelsdorf, and Dave Sutter all have sons at the Institute. Bill Lowell has a daughter at Wellesley, as does Guy Frisbie. Ann Emerson, daughter of Walter Emerson, who died in August, is also at Wellesley. Ken Billings has a daughter at the school of the Boston Museum of Fine Arts. This is a surprisingly large representation, and the number of '26 sons who are attending the Institute is especially notable.

Course I men will be interested to learn that Alfred Lash is now chief construction engineer with the British Columbia Power Commission in Victoria, British Columbia, and that William Stell, Jr., is the owner of Arnold R. Kamman Company in Buffalo and is living in Rochester. — For Course II graduates we can report that Winslow Russell, formerly in Toledo with the Packard Motor Car Company, is now in Lewiston, Maine, with the N. A. Philips Company, Inc., and that Morton Woodason has returned to the Foxboro Company after service as a Navy commander and is living in Sharon. — Wilfred Carter, who received his degree in Architecture, is now president of Air Conditioned Homes, Inc., and lives in Concord, Mass.

We have news this month of two of our Electrical Engineering graduates: George Rockwood, Jr., has left the technical staff of the Bell Laboratories in New York to become associate professor of electrical engineering at the University of Illinois. Grant Speer, Jr., is a designer with Northrop Aircraft in Hawthorne, Calif. — William Rooney, who was graduated from Course IX, is merchandise manager for Edwards and Company, Inc., in Norwalk, Conn.

The four Chemical Engineering graduates of whom we have word this month are widely scattered: Robert Williams is general manager of the Tennessee Farm Products Company in Chattanooga; Smith Turner, Jr., is with Standard Oil at 36, Queen Anne's Gate, London, which has for some time been the business address of another Course X man, Dave Shepard; Lawson Peakes, Jr., is with Nopco Chemical

Company in Harrison, N.J.; and Gosta Holmer is color photographer with the Wright Engraving Company in Boston. — Robert Rogers, XIII, is chief engineer with Scott Testers, Inc., in Providence; he was a lieutenant colonel in the Army during the war. — JAMES R. KILLIAN, Jr., General Secretary, Room 3-208, M.I.T., Cambridge 39, Mass.

1927

More than two years ago we reported that Alexander G. Shisko had been killed in action about January 9, 1945. Recently the Boston Traveler reported that the bodies of nine Boston heroes had been returned to this country in an Army transport. Among them was that of Lieutenant Shisko. He lost his life in New Caledonia while in command of a construction regiment. He was a native of Poland.

At the beginning of World War II, Andy Anderson left the Monroe Calculating Machine Company to join the Army Ordnance Department. He was released from the Army in order to work with the Edison Company of West Orange, N.J. He subsequently became plant manager of M. H. Rhodes, Inc. We now have word from him that he has returned to his "first love," namely the Monroe Calculating Company, with whom he had worked for 15 years before the war. His home address is 349 Irving Avenue, South Orange, N.J.

One of the first things your Secretary remembers reporting when he took over this job was that Bob Bonnar had become chairman of Sub-Committee B-4 of Committee D-13 on Textiles of the American Society for Testing Materials. That was in 1944. Today we have word of the appointment of J. Robert Bonnar as acting chairman of the research committee of the American Association of Textile Chemists and Colorists. Bob's paying job is the technical directorship of the General Dyestuff Corporation, 435 Hudson Street, New York.

We had had no word from Joe Brady until the other day when we discovered that he is one of the 60,000 people who work along with your Secretary in Radio City. He has written the following interesting autobiography and can be reached in care of the United States Rubber Export Company at 1230 Avenue of the Americas, New York: "At present I am working for the United States Rubber Export Company (a subsidiary of the United States Rubber Company), supplying manufacturing specifications and technical service to enable several companies in foreign lands to make automobile tires, inner tubes, footwear, and other rubber products for markets which are closed to us by tariff barriers and lack of exchange. In return for the information and the service, we obtain a royalty fee and other considerations. It's interesting, and provides opportunities for occasional bits of foreign travel. In the four years preceding my transfer to the Export Company, I worked for the synthetic rubber division of the United States Rubber Company as a liaison man, carrying information concerning industry, manufacturing, and performance problems to the synthetic rubber plants and information concerning new types of synthetic rubber to the fabricating plants. The drop in price of natural rubber in July and August and the removal of government restrictions on the

use of it in products other than tires and tubes, made the future of synthetic rubber look very dark. Since that time it has brightened considerably as a result of government buying and a resulting increase in the selling price of the natural rubber."

During the war we tried to get in touch with William R. Frederick, Jr., a lieutenant colonel, but he hid successfully behind his San Francisco A.P.O. number. Subsequently, he emerged at Aledo, Texas, and has now written the following concerning his activities: "I have reported to this station under War Department orders and am taking command of the 17th Field Artillery Battalion here at Fort Sill, Okla. This is, as you know, the artillery center and the headquarters of all the artillery schools. The 17th is one of the Field Artillery battalions stationed here and used as school troops. The school troops furnish the men and material for demonstrations and firing for the students here. The 17th is a truck-drawn battalion armed with 105-millimeter howitzers. I am one of the 'integrated officers' in the Regular Army in which my commission dates from 5 July 1946."

The engagement of Nancy French Ray to Fermo Anthony Bianchi was announced in the Boston Globe on October 12. Bianchi studied at Chauncy Hall before entering Course I. In 1940, he was vice-president of Carlo Bianchi, 24 Union Avenue, Framingham, Mass. — Francis L. Ford has left the Florence Stove Company in Gardner, Mass., where he was doing combustion research and is now employed by the M. W. Kellogg Company, New York City, as a chemical engineer. His home address is 92 Colony Avenue, Park Ridge, N.J.

We regret to announce the death of Robert Newell Oakley on October 10, 1945. No further information is available, but it is possible something can be furnished by some other class member. Newell was employed, in the early 1940's, by Day and Zimmerman, Packard Building, Philadelphia, Pa. — JOSEPH S. HARRIS, General Secretary, Shell Oil Company, Inc., 50 West 50th Street, New York 20, N.Y.

1928

Roland D. Earle, chairman, has reserved the famous Wianno Club in Wianno, Osterville, Mass., on the Cape for our 20th reunion on the week end which includes Saturday, June 26. I am sure members of the Class will be delighted to know that the reunion is to be held at this famous scenic spot, which has excellent sports facilities, and to have this information far enough in advance so that plans may be made to permit attendance. Further and detailed plans will be announced to the entire Class by letter early in 1948. The date and the place seem to be the most important bits of information at this early writing. Roland has located a spot famous for Tech reunions and has reserved it on the first available date after opening for the summer season.

After many years of silence, good news has come to your Secretary from Charlie Richheimer, the star hoofer of Tech Show days in 1927 and 1928. Charlie is now a partner in the consulting engineering and architectural firm of Reynolds, Smith, and Hills with headquarters in Jacksonville, Fla. His work consists largely of municipal and

industrial water and sewerage system designing. In addition to enjoying the Florida sunshine and surf bathing, Charlie has contributed many technical reports through the years on topics of municipal and industrial water supply. He is married and has one child four years old. He extends to all classmates who may pass through Jacksonville a hearty invitation to get in touch with him.

— From Charlie we also learn that Bruce Sherrill is with the Grinnell Company in Atlanta, Ga.

Louis Scherer, who for many years was with Sears Roebuck and Company in Chicago before his tour of duty as lieutenant colonel in the Army Reserve, is now making his home in Newton. Lou has a business of his own and is now president of the Automatic Cashier Company of Massachusetts, a company which sells automatic coin changers. William H. Phillips has been in Boston the last few months doing a consulting job on office procedure for the Boston Chamber of Commerce. He now makes his home in Washington, D.C., where he is the resident engineer for Kenneth A. McIntyre Associates. Bill reports a fine family of five children, ranging in ages from 15 to twins, aged 6.

Redmond E. Walsh, one of '28's cross-country runners, has now joined the ranks of the benedicts. He was married last June to Elizabeth Frances Murphy of Boston. Art Nichols, our class representative on the Alumni Council, has recently been appointed technical chairman for the semi-annual convention of the American Society of Tool Engineers, which is holding its convention soon in Boston. Art has been very active in mechanical engineering circles for the past 20 years and is a member of the W. H. Nichols Company in Waltham.

You will be reading these notes around Christmas. Best wishes to all of you for a happy holiday season and a prosperous 1948. Remember the date—the week end of June 26, for the 20th reunion of the Class of '28.—GEORGE I. CHATFIELD, General Secretary, 49 Eton Road, Larchmont, N.Y.

1930

We welcome Bob Poisson as our new assistant secretary in the New York area and extend to all of you in that general vicinity an invitation to shower Bob with news for this column by sending any and all items of interest to him at 105 East 88th Street, New York 28. Bob has returned to his position in the textile business after serving in the Navy during the war.—Proud parents include the Jimmy Holdens (a girl) and the Gil Coxes (a boy). Gil makes his home in Rochester, N.Y., while Jimmy is with Good-year in Akron, where he was visited recently by Fluque Rowzee, who is production manager for the Polymer Corporation of Canada (synthetic rubber).—Dan D'Antoni is now the executive vice-president of the Standard Fruit and Steamship Company, the line for which Dan, Willie Ulcher, and your Secretary conducted an engine and boiler test back in 1930 on a thesis trip to Honduras. Joe Twinem is in Tokyo as metals economist for the Civil Affairs Administration in MacArthur's headquarters, after administrative work for the War Department in San Francisco. Bob Nelson writes that George Perry is still in Barranquilla, Colombia, and re-

cently met Manuel Calderon in Panama, where the contracting business is a prosperous one to be engaged in. Send along your news items to any one of the undersigned.—PARKER H. STARRATT, General Secretary, 1 Bradley Park Drive, Hingham, Mass.; Assistant Secretaries: ROBERT M. NELSON, 332 South Michigan Avenue, Chicago, Ill.; ROBERT A. POISSON, 105 East 88th Street, New York 28, N.Y.

1937

The biggest news this month is that Walt Blake has offered to assist in writing the notes. Phil Peters helped out during the war as best he could, and we offer him our thanks for a job well done. Notes from Walt follow these brief items from your Secretary.

Lyle C. Jenness, a professor at the University of Maine, has been appointed acting head of the departments of chemical engineering and industrial co-operation there.

Richard B. Landrigan, chemical engineer, has been appointed to the staff of Battelle Institute in Columbus, Ohio, where he will conduct research in the graphic arts. He was formerly a research chemist with the Durez Plastics and Chemical Company in North Tonawanda, N.Y.

We have two star pupils on our letter-a-month idea for *The Review*. Bill Austin writes as follows: "Since I made the suggestion at the reunion, I thought that I should at least keep up my end of the idea and send you the letter called for this month. Every once in a while, I meet Bill Healy on his way to work (he works for the same company as my third oldest sister) and have the pleasure of riding with him part of the way. While out on a job for my company, Cox Engineering, I met John Gould, who is working for the Barre Wool Combing Company and living in Barre, Mass. He tells me that his position is quite interesting and that he enjoys living up in that section of Massachusetts. Every now and then, I meet one of our coeds, in both a business and social way. I refer to Mary Curtis Metcalf, who operates both her family and her businesses quite efficiently. When I say "businesses" I mean just that—three of them. Offhand, I'd say that she is doing better than most of her male contemporaries. Along with the businesses, she has three charming daughters. My older boy has finally started on the long trek toward Tech; he entered kindergarten last week. What a long road of learning he will have to cover before he can join the ranks of the brown-baggers! Our second son will celebrate his fourth birthday on the first of October. So there is a little progress in the Class of '37 from at least one point of view: the children are growing up, and our hair is becoming thinner."

Phil Dreissigacker contributes the following: "I believe I am a month late with this letter, as I look back and recall the correspondence boost plan, proposed and carried at our Mayflower reunion. I am back in the Louisiana sugar country again this fall—in a somewhat more populated district, however. I have been here for a month and, since we are putting the finishing touches on the plant, should not be here very much longer. My wife and son did not come south with me on this trip because of the problem

of living quarters. Incidentally, this is the first official notice in the class notes of our son, Richard Alan, born on March 26 and now very much the boss of our household. This sugar mill, the St. Mary Sugar Coöperative is very similar to the one Farrel constructed a year ago 100 miles east of here on the Mississippi River. The engineering work on the plant is very interesting, but I do not hanker for the southland, particularly after three years of it while in the Army. I have seen no one from our Class since the reunion but have written to Bill Chandler and Tom Hallenbeck, telling them of the good time they missed. That was little consolation, though, as I know each had hoped to make the reunion but was unable to fit the date into his plans. I, for one, enjoyed renewing old acquaintances and hope it will not take 10 or 15 years to get so large a group together again."

From Walt: After long and faithful service, your assistant scribe has grown weary—yes, Phil Peter's witticisms are no more. In his place, I will bring you my vista of '37 news from a point of view down below the Mason-Dixon line. When Windy Johns asked me to take on this job, I was about ready to catch a plane for Minneapolis, and here goes as to the news garnered en route. I called Dick (Gustav Richard, that is!) Young between planes in Cleveland. He reported that Perley Goodwin was a recent house guest at the Youngs'. Dick told me that Art Zimmerman is still in Cleveland. Dick and his wife were about to spend their vacation at Hot Springs, Va.—which is in the right direction!

When the plane loaded in Detroit, I risked the whole of 30 cents to call Jerv Webb, and my luck was with me—the machine paid it back. If I had lost that 30 cents, it would have been a worse blow than the dead squid. Jerv presented me with at the reunion banquet on the Cape this last June. I had a letter from Harry Goodwin the other day. He, with the assistance of his wife, Mell, is now a parent. It was dubbed Stephen.

This communiqué comes to you from the Minneapolis Athletic Club, which makes me wonder what one famous '37 Minneapolis, Bill Burnet, is up to—perhaps he will write your new assistant scribe. Well, that's it. It is brief because my appointment was on short notice. You fellows supply the grist, and I'll supply the mill to turn out the gist of the grist.—WINTHROP A. JOHNS, General Secretary, 34 Mali Drive, North Plainfield, N. J. WALTER T. BLAKE, Assistant Secretary, Piedmont Publishing Company, 419 North Marshall Street, Winston-Salem 1, N.C.

1938

We hope that by the time these notes appear in *The Review* you will all have been reminded that our 10th reunion is coming up this June. Yes, we're going to have a reunion, and every one of us should make a real effort to be in Boston around the first of June to renew old acquaintances. Several members of the Class are formulating plans for a get-together that no one will want to miss. It will be an affair lasting at least two days (that isn't a very long time in which to talk over the happenings of 10 years!) The ladies will be welcome; they will have some talking-over of their own to

do. So plan now to enjoy yourself in Boston this spring (the definite dates will be announced next month, we hope).

Fred Lamb was one of the first shipment of World War II dead returned in October for burial in this country. Fred was the leader of a dive bomber squadron in the Pacific which had 10 Japanese planes to its credit. He had put in 2,300 hours of flying time and was killed in a plane crash in the Hawaiian Islands on November 8, 1943.

We recently compiled some statistics on the distribution of our classmates and believe you may be interested in them. Of the 822 on the class roster, 68 are now in 26 foreign countries (not counting those who may be in service with the occupational forces). The largest contingent (20) is in China, the second in Canada (7), the third in Siam (5); and then come Argentina (4), Cuba (3), Hawaii (3), India (3), Venezuela (2), England (2), the Philippines (2). One of our classmates is now in Russia, but none has settled in France, the Low Countries, Norway, Spain, or the Balkan countries. The distribution through the United States is about the same as we suspect that of our original home towns was, with a possible trend to the West. Some 225 have made their homes (at least temporarily) in and around Boston; about 75 are now located west of the Mississippi; about 90 are south of Washington, D.C., and the remainder are spread through the East and North from Minneapolis to Bangor.

Arch Copeland tells us that he and his family (his wife, Jo-Ann, son Arch, 3d, and daughter Ellen) have spent the last three years in Detroit, where Arch is in the technical advisory department of Revere Copper and Brass. He has done some corresponding with Howard Milius and Dave Beaman, but offers no news about them. — Bob Park writes that he has returned to the Texas Company in Houston after four years in the Army and two years with the Corps of Engineers, Military Pipeline Service, in the Mediterranean theater. At the present time he is doing design and process engineering for gasoline and cycling plants. He also says that Bob Flanagan is with the Tennant Company, engineers, in Houston, and that Nick Wheless is in the drilling contracting business with his father.

Bill Bender, Erich Nietsch, and Chauncey Bell are all with the Glenn L. Martin Company in Baltimore. It seems that Bill is all wound up in research work (and it sounds very interesting), while Erich is in charge of all vibration and flutter work for Martin. Chauncey is in charge of customer service on the new "202" transports now being delivered to the airlines. Erich, apparently, has so far withstood the lure of married life, but Bill succumbed in 1945 to a lady named Mary Virginia Priebe and now has a daughter. Chauncey sounds like an old married man, with his two sons. Bill and Erich have taken advantage of their proximity to Chesapeake Bay; each now owns a Delta Class sloop.

We had an interesting letter from Barney Mehren, advertising the P. M. Chemical Company line of synthetic detergents (first in the West). Barney re-established the company in San Diego, Calif., in 1945 after his release from the Air Forces. Now we know where all that "soft soap" in Holly-

wood comes from! — Another westerner is John Summerfield, who is presently engaged at the University of California (Berkeley) in work toward a Ph.D. in economics. Both he and his wife, Mary Anne, who is studying for a Ph.D. in physics (sounds as though the fields of study are mixed up, but that's what he said!), are also teaching. John tells us that Bill Brown is likewise at the University, "rubbing elbows with the 184-inch cyclotron."

Bob Eddy recently left the Dravo Corporation in Pittsburgh and has returned to Philadelphia. He was in New York lately to attend the naval architects' meeting and was to begin his new job with Atlantic Refining in Marcus Hook about the middle of November. — We want to wish Jim Hess luck in his new job on the staff of the Institute of Metals at the University of Chicago. Jim was formerly with the magnesium laboratory of the Dow Chemical Company in Midland, Mich.

Through the Alumni Office, we learn that Sid Baron is now with the United States Naval Underwater Sound Lab at New London, Conn. That's a far cry for a Course X man! From the same source, we have word of other new positions taken by some of our classmates: Robert York, Jr., Monsanto Chemical Company, 1700 South Second Street, St. Louis, Mo.; Arthur J. C. Wilson, University College, Cardiff, Northern Ireland; Charoen Patabongse, Rong Muang Ice Factory, Bangkok, Siam; Henry P. Rumble, Bureau of Ships, Navy Department, Washington, D.C.; Donald S. Macdonald, United States Department of State, Foreign Service Institute, Washington, D.C.; Kenneth M. Gunkel, W. R. Grace and Company, Lima, Peru; John R. Conover, Public Service Electric and Gas Company, 80 Park Place, Newark, N.J.; Kow K. Choong, National University, Mechanical Engineering Department, Nanking, China; David W. Beaman, Jr., Frederick Hart and Company, Inc., 837 Main Street, Poughkeepsie, N.Y.

Don't forget the 10th reunion. — DALE F. MORGAN, General Secretary, Carbide and Carbon Chemicals Corporation, 30 East 42d Street, New York, N.Y.; ALBERT O. WILSON, Jr., Acting Assistant Secretary, 32 Bertwell Road, Lexington 73, Mass.

1941

We are going to omit weddings and engagements for a change in favor of career accomplishments. Paul Dunn is new assistant general superintendent of motive power of the Boston and Maine Railroad, having complete jurisdiction over all Diesel motive power of these lines. Don Jordan, who worked with the Division of Industrial Cooperation at the Institute, has just received a fellowship appointment at the University of Delaware. Ed Beaupré figures in the West Keene, N.H., news about the completion of housing projects for veterans. Al Hartman has been appointed New York sales representative of the vacuum equipment division of Distillation Products, Inc., Rochester, N.Y., effective July 15. Al was in the Navy from 1942 to 1945 and then remained with the Bureau of Ordnance until the first of this year, when he joined D.P.I. Larry Turnock has been elected treasurer of the stu-

dent Bar Association of the school of law at Western Reserve University.

Russell Bowen, who recently completed study for his M.S. at the Institute, has joined the staff of A. D. Little, Inc. Another staff member is Dick Tindal, who was operating his own manufacturing business in Springfield, Mass. Bob Fulton was safely returned from Zentsuji war prisoners' camp in Japan and may be addressed at present as Commander R. B. Fulton, U.S. Navy, Norfolk Naval Shipyard, Portsmouth, Va. Thayer Rudd recently ran for a post on the Lexington planning board; he is now associated with Dewey and Almy Chemical Company, Cambridge. We hear that Charles Hall spent the first year after graduation with Jackson and Moreland, engineers in Boston, and the following four years in the Civil Engineering Corps of the Navy, as officer in charge of construction in the utility office on Guam. Since returning with the rank of lieutenant in December, 1945, he has been employed by the American Can Company as resident engineer on a construction project in Tampa, Fla. — STANLEY BACKER, General Secretary, 101 Providence Road, Primos, Pa. JOHAN M. ANDERSEN, Assistant Secretary, Saddle Hill Farm, Hopkinton, Mass.

1942

Lou Rosenblum wanted me to begin this month's column by thanking all those of you who have sent in Alumni dues. The support of many more of the Class is still needed.

Carl Jealous wrote me an interesting letter recently. (Don't forget, letters are the principal source of news for these notes.) He said in part, "Life in Oak Ridge continues at an irradiated pace. I've been at the Clinton Laboratories since February. I'm in process development. Oak Ridge is continually progressing toward the semblance of a normal community. As for activities, being one of the local Junior Chamber of Commerce vice-presidents and a member of the Oak Ridge Library board of directors keeps me strictly out of mischief. Our two daughters, however, find plenty of the latter to get into nowadays." Carl had some news of Jerry Coe, Frank Seeley, and George Illich. Jerry is very busy at General Electric's new Waterford, N.Y., plant, where silicone production operations are just getting under way. Frank is selling for G.E.'s subsidiary, Trumbull, in Plainville, Conn. George is apparently quite enthusiastic about his situation at the Abbott Labs. Carl said in his letter that if anyone wants to hear from S. Edward Yoder, first get a job with Carbide and then get on the distribution list for his annual interplant serial letter. Direct contact won't work, according to Dan Hulett, who gave Carl this information.

Speaking of Dan Hulett reminds me that he sent me a note to the effect that William R. Wilcox has joined Du Pont as chemical supervisor of phenothiazine production at the Houston, Texas, plant. Dan also said that Harry Knox is now in Lynchburg, Va., and is well pleased with his new job.

I ran into J. Halsey Jones the other day in the lobby of Building 7. He is at Pratt, studying industrial design. He has taken the course given in this subject at Cal Tech, but still wants to learn more about it. John

R. Clark is an associate professor of metallurgy in the postgraduate school at the United States Naval Academy. He has been a development engineer with the Carnegie-Illinois Steel Corporation. Another member of our Class who is in college work at Lafayette College, Easton, Pa., is Wen-Mou Chow. He has been named assistant professor of chemical engineering at the University of Nanking, China. John E. Uhlemann has joined the fur company in Chicago founded by his grandfather and bearing his name. One of our coeds, Alice Heath, is health educational consultant of the Illinois department of public health. She is active in arranging health programs for school systems in Illinois. She is also working on her Ph.D. thesis for Yale *in absentia*.

A number of our Class have recently been married or plan to become so in the near future. They are: Graham H. Bell, John A.

Finger, Jr., Maury Katz, Edward L. Pepper, George T. Saathoff, Robert E. Staff, Jackson B. Wells, Jr., and Karl E. Wenk, Jr.

That is all the news I have for this issue. There was no column last month because no one had sent me any news. I hope you'll find time to write to me during the coming month.—JOHN W. SHEETZ, Acting Secretary, Room 3-108, M.I.T., Cambridge 39, Mass.

1943

Cupid monopolizes the news this month with the announcement of two engagements and the report of a wedding. Here are the details. Late in September, Rosamond Poole's parents announced her engagement to James O. McDonough. Rosamond's home is in Arlington, Mass., and she is currently at Jackson College. A few weeks later, Mr. and Mrs. Pike announced the engagement

of their daughter Daphne to John Peter Gratiot. Daphne's home is in New York, and she attended Barnard College. After service in the Navy, the groom returned to M.I.T. for a master's degree. He is now with the De Florez Engineering Company. This couple plans a late November wedding.

It was in Belmont, Mass., on October 4, that the former Elizabeth Ann Durkee and Carlton Lehr were married. The couple went on a wedding trip to Ponte Vedra Beach, Fla., and are making their home in Newton, Mass. Carlton has returned to M.I.T. for graduate work and is a research assistant in the Electrical Engineering Department.

Shortness certainly characterizes these notes, and I hope that sweetness is associated with them too!—CLINTON C. KEMP, General Secretary, Barrington Court, 988 Memorial Drive, Cambridge 38, Mass.

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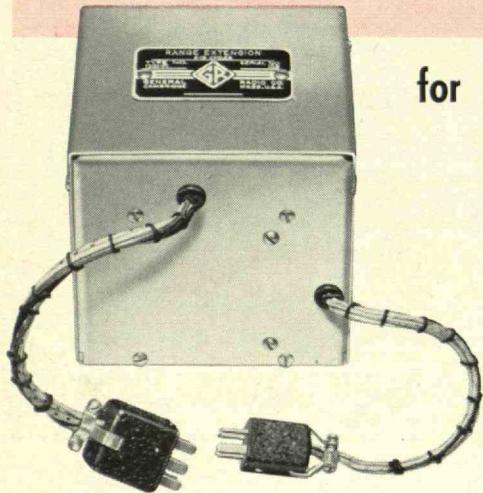
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